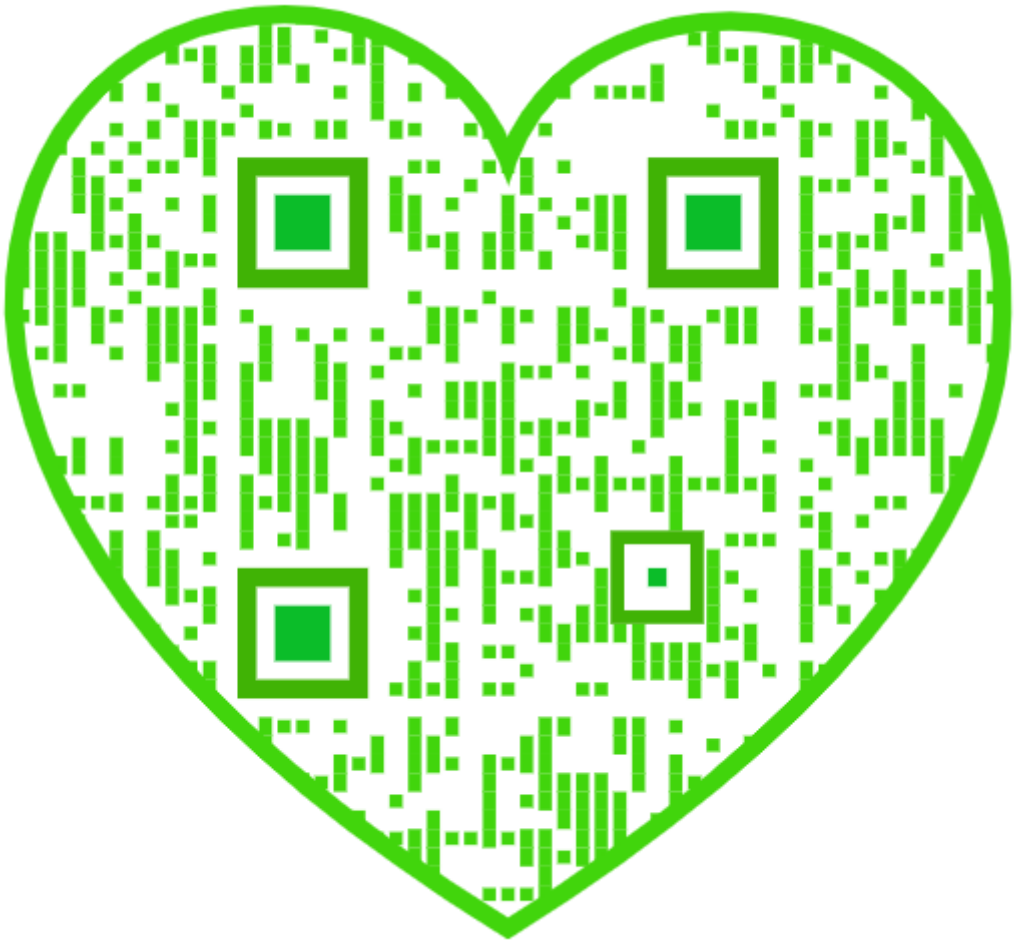
PRAGTIGAL METHODOLOGY



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PRACTICAL METHODOLOGY.

BY

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PREFACE.

The present book is what its title implies, an attempt to reduce what is practical and pedagogical in the method of teaching the subjects discussed to an organized and systematic form. It has been undertaken in response, first, to a growing need for a teachable and scientific statement of the truths of method for use as a text-book in classes studying methodology; secondly, to a persistent demand of many teachers and students for a more specific discussion of method in reading, number, grammar, primary language, history, geography and nature study than any in print.

To supply these needs is the main idea which has prompted to the preparation of the present volume.

It is the aim of the present discussion (1) to investigate the theory aspect of general method briefly; (2) to apply the truths of general method in the study of special method in reading, number, grammar, primary language, history, geography and nature study; (3) to give an abundance of concrete illustrations of what lessons in these subjects should be in the light of the theory; (4) to criticise existing practices in the teaching of these subjects which are believed to be unpedagogical. These studies are, therefore, *theoretical*, *practical* and *critical*.

It has constantly been the purpose to organize the truths of the teaching act into a system upon the basis of a centralizing truth, and thus to introduce unity into the discussion to a greater degree than is usual in methodology.

In the critical aspects of the work, the criticisms have been merely those of a student of current method. No ill-will has at any time influenced in this aspect of the study.

No attempt has been made to popularize the discussion. Popular discussions on method have proved all but worthless to the cause of education.

Simplicity and definiteness have been aimed at through the entire discussion to the end that direct help might be given to the student of methodology.

These studies are believed to be the most *definite* and *simple* discussion in print on method in reading, number, grammar, primary language, history, geography and nature study. They are, also, believed to be in harmony with the best educational thought of the present time.

G. W. N.

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CHAPTER I.

THE NATURE OF METHOD.

The Teaching Act.—The school exists as an institution of society in order that the most favorable conditions may be furnished for the act of teaching. This, the teaching act, is the crowning process in all school work. It is in this act that the mind of the pupil comes into vital touch with the mind of the teacher. It is here that the most important duty of the teacher is involved. To this process all other processes of the school point. The school finds the idea that created it in the process of realization in the teaching act. The teaching act is a process for it is a series of steps directed toward the accomplishment of an end. The teaching act is not a simple process for it is a large process made up of smaller processes. It is not a compound process for not all of the processes of which it is made up are of equal importance. It is a complex process, since some of the processes of which it is made up are of less importance than others.

The Processes in It.—A brief analysis of the teaching act shows that it is composed of three processes, (1) the thinking the learner is doing; (2) the thinking the teacher is doing; (3) a process of handling questions, directions, objects, assignments, and so on—the manipulation of means in teaching. The first two of

these processes are spiritual, or mental, processes, and the third is external to both the mind of the teacher and the learner and is a physical process. Of these three processes the one in the learner's mind is the most important, since the other two stand in relation to it of means to end.

Illustration.—In teaching the definition of a noun to a class, first, the learner's mind goes through a process of thinking (1) that the noun is a substantive word; and (2) that it expresses an object by naming it. This is the process in the mind of the learner in the teaching act. Secondly, the teacher thinks these same points through with the student, and of course some additional ones, too. This is the spiritual process of the teacher in the teaching act. Thirdly, there is a process of asking questions, illustrating, possibly referring to textbooks, etc., going on, and this is the physical process in the teaching act.

Nature of Method as a Subject of Study.—The question, What is method as a subject of study? is often asked. It may be answered in a general way by saying it is a subject of study the pursuit of which has for its special object to make teachers more skillful in teaching than they would be without such study. That is to say, it is a *professional* subject for teachers. But this much might be said of any pedagogical study—of psychology, for instance. To be more definite, *method as a subject of study is that professional subject which deals with the three processes in the act of teaching.* Thus the three processes in the teaching act in their

various aspects constitute the material of all study in the subject of method.

The Subject-Matter of Method.—By subject-matter is meant *the material of study* either in any lesson or whole subject. It is the thought and feeling embodied in any lesson or subject which are to be got from such lesson or subject by adequate study. The subject-matter always consists of two points, (1) *the facts* to be studied; and (2) *the relation* in which the facts are to be studied. In the subject of method the facts to be studied are *the three processses* in the teaching act, and the relation in which they are to be studied is their *relation to the growth* in the life of the learner. Thus the subject-matter of method as a subject of study may be stated as follows: *The subject-matter of method is the three processes in the teaching act in relation to the growth in the life of the learner.*

Definition of Method.—The actual method in teaching is a complex and comprehensive thing. It always consists of the three processes in teaching. Any definition to be accurate must include the various aspects of these processes. The following, it seems, does this: *Method is the triple process in the act of teaching by which the learner is induced to take the steps from his real condition to a higher condition held up as an ideal.* This is the definition of the actual method in teaching considered in its broadest and most comprehensive sense, and the sense in which its study will give the most help to the teacher.

Classes of Method.—Since there are three processes

going on in the teaching act, there are, in a sense, three methods; the learner's method, the teacher's method, and the physical method. These three will be studied somewhat in detail.

The Learner's Method.—The learner's method is the movement of his mind in gaining any point of knowledge. It is thus a living spiritual process internal to the learner's life. Method from this point of view is mental growth. That is to say, it is the change of potential mental activity into actual mental activity, and this constitutes mental growth.

Illustration.—If the child learns in a number lesson that eight plus seven equals fifteen, the activity of his mind in thinking the following things is his method: first, his mind rethinks the number eight; secondly, his mind rethinks the number seven; thirdly, his mind thinks the number eight and seven together; fourthly, his mind thinks the name of the new number. These four steps are the movement of the learner's mind in thinking the point of knowledge, and are, therefore, his method. This aspect of method calls attention to the fact that the thing to be watched and emphasized in teaching is the change in the learner's life, which should enable him constantly to rise to a higher plane of living.

Definition of the Learner's Method.—The following definitions explain the learner's method:

1. *The learner's method is the activity of his mind in learning a thing.*

2. The learner's method is the movement of his

mind by which it identifies itself with the thought and feeling of the world.

3. The learner's method is the mental activity by which his mind makes the objective the subjective. The objective means the unknown or all that may be thought about, and the subjective means the self. The self in a broad sense means mind and body both. And the mental self means one's capacity to know, to feel, and to will, plus the effect of one's experiences on this capacity.

4. The learner's method is the process in which his mind goes from its real condition to an ideal condition. One's real condition is his condition just as he is at any time. His ideal condition is one different from what he is in at any time, and which actually has no existence except as an idea in the mind; hence the name *ideal.* The ideal condition is not necessarily a better condition than the real, but may be either a better or worse condition.

The Teacher's Method.—The teacher's method is the thinking he does in teaching a thing. Since there are many things the teacher must think in teaching a lesson or even a single point some of which are more important than others, the teacher's method is complex. In the study of method as a subject the teacher's method is an important topic. It must be thoroughly understood by one who is to succeed best in teaching.

By holding in mind that the teacher's method is a process of thinking, five elements in general may be found in it: first, the teacher must think the thought

in the point or points to be taught; that is he must think the *subject-matter;* secondly, he must see in terms of development in the learner's life the reasons for teaching the subject-matter; that is, he must see the *purpose;* thirdly, the teacher must see the nearest related knowledge possessed by the learner which he can use as a foundation to build upon in teaching the new point; that is, he must think the *basis;* fourthly, the teacher must see the activities the learner's mind puts forth in mastering the points of truth in the subject-matter; that is, he must think the *steps;* lastly, the teacher must see the means he may best employ in leading the mind of the learner to take the steps in mastering the subject-matter; that is, he must think the *devices.* Thus the elements in the teacher's method are as follows:

1. Thinking the subject-matter.
2. Thinking the purpose.
3. Thinking the basis.
4. Thinking the steps.
5. Thinking the devices.

These five things every teacher does in some sort of way in teaching every lesson. Some think out the points clearly and accurately, and some think them out scarcely at all, and do not know that they do even that much. A teacher can think the teaching of a single point, a whole lesson, or of a whole subject under these five heads and must do so in some way in teaching. It is worth while to study these five points further for the help the study will give.

Subject-Matter.—In a general way the subject-matter is the material of study in any point, in any lesson, or in any whole subject. It is the thought embodied in the thing studied by the mind of the learner. In a particular lesson the subject-matter is just that to be got from the lesson which the learner should have after the recitation. In a particular subject, as grammar or history, the subject-matter is just that to be got from the subject which the learner should be in possession of after having studied the subject. In this general sense the subject-matter of education is the whole world of thought. While this general study is true, a closer study will show that every subject-matter is composed of two things: 1. The facts to be studied or taught. 2. The relation in which these facts are to be studied or taught.

Illustration.—Suppose the words, *inquiry, aspirant, orthoepy,* and *discourse* are to be taught. Now, a spelling lesson might be made of it; and if it were a spelling lesson, the following would be the statement of the subject-matter: The words, inquiry, aspirant, orthoepy, and discourse as to their correct written or printed forms. Thus the words, *inquiry, aspirant, orthoepy,* and *discourse* are the facts to be studied or taught, and "*as to their correct written or printed forms*" indicates the relation in which they are to be studied or taught. But these same facts might be used, and the lesson not be a spelling lesson at all. If the relation in which they are to be studied or taught is *as to their correct pronunciation,* the lesson is one in

orthoepy, and the following is the statement for the subject-matter: The words, inquiry, aspirant, orthoepy, and discourse as to their correct pronunciation.

Further Illustration.—Suppose the facts of the revolution of the earth around the sun are taught, who can say whether the lesson is one in astronomy or one in geography? If, however, these facts are taught in relation to the distribution of climate, relief forms, plant life, animal life, and human life on the earth's surface, the lesson at once reveals itself as a geography lesson.

From these illustrations it is to be seen that each subject-matter consists of two things: (1) the facts to be studied or taught; (2) the relation in which they are to be studied or taught. This relation in the subject-matter is called the *organizing principle* of the lesson or subject, and is often the only difference between two lessons or two subjects.

Statement of Subject-Matter.—The statement of the subject-matter is not the subject-matter any more than a word is an idea, or a sentence a thought. The statement of the subject-matter bears the same relation to the subject-matter that the word bears to the idea and that the sentence bears to the thought; that is, the statement is a symbol and bears the same relation to the subject-matter that the symbol does to the thing symbolized.

The statement of the subject-matter is valuable to the teacher, whether it be of a whole subject or of a single lesson. It is very helpful to the teacher because it does two things: (1) it names the facts to be taught;

(2) it tells the relation in which these facts are to be taught. Thus the general statement of the subject-matter is a constant guide to the teacher in teaching any subject, in that it shows, in a general way, what to teach and in what relation (how) to teach it.

Purpose.—Purpose in reality is beginning and end in every process. The purpose as idea—the beginning urges forward the process of teaching to its realization —the end. The purpose first exists in the teacher's mind, but is to be realized in the life of the learner. *The purpose is the effect the mastery of the subject-matter should have on the life of the child.* In actual teaching the teacher must judge the effect the thinking the subject-matter will have on the life of the child from the effect its thinking has on his own life. That is to say, there is no way to tell the purpose of teaching the subject-matter except from the effect its mastery produces on the child's life. The course of study—the subject-matter—is usually provided for the teacher. So the teacher must start with the subject-matter and find out the purpose in teaching it. Much depends in the teaching act upon how well the teacher does this. If the teacher has definitely in mind just what he wants to do in the lesson he will be drawn steadily and constantly toward its accomplishment. A definite purpose (1) saves time; (2) economizes energy; (3) emphasizes the important; (4) organizes work; and (5) prevents aimless wandering.

Reflection shows that in teaching any lesson or subject there are two aspects of the purpose:

1. A knowledge-giving purpose.
2. A disciplinary purpose.

In every subject or lesson taught it should be the purpose to give the learner some valuable knowledge; that is, knowledge useful for guidance in right living.

It should also be a purpose of every lesson taught to give mental discipline; that is, to furnish a mental gymnastic to the end of giving the mind health and growth and strength by exercising it.

Basis.—This is the learner's nearest related knowledge to the new points to be taught, and that upon which the teacher may build in teaching the new point or points. Thinking the basis is an important point in the teacher's method. Many errors are made in teaching because the teacher does not accurately think the basis, and thus attempts to teach a point for which the learner does not have adequate basis or he fails to use the basis which the learner has. The psychological principle underlying basis is as follows: *The mind naturally goes to the unknown from the nearest related known.* Teaching in harmony with this principle means a progressive development of a subject, each step becoming basis for the step succeeding it. There are many violations of basis in teaching as usually done.

Illustration.—If the lesson to be taught is that five plus four equals nine, the child must know the number *five,* and the number *four* as basis before he can be taught that five plus four equals nine. If the teacher should attempt to teach this lesson without having taught the numbers *five* and *four,* he would meet with

the difficulty of insufficient basis. Again, if a teacher attempts to teach the noun to a class without the class having a definite knowledge of an object, he will most surely meet a difficulty in the basis.

Steps.—Steps are more or less complete movements of the mind. They are mental things and in the teaching act are in the life of the learner. *They are the advances of the mind in mastering the separate points of the lesson to be learned.* Or in a more general sense they are the advances of the mind in mastering the various phases of a subject.

Illustration.—If the lesson to be taught were that seventeen minus eight equals nine, the steps would be as follows: 1. The advance of the mind in rethinking the number *seventeen.* 2. The advance of the mind in rethinking the number *eight.* 3. The advance of the mind in thinking the number *eight* away from *seventeen.* 4. The advance of the mind in thinking the number *nine* as the remainder. Again, if the lesson to be taught were the definition of a triangle, after the examination of several particular triangles, the steps would be as follows: 1. The advance of the mind in thinking the triangle is a polygon. 2. The advance of the mind in thinking the triangle has just three sides. 3. The advance of the mind in thinking the triangle has just three angles. 4. The advance of the mind in making a synthesis of these points in the definition, *A triangle is a polygon having just three sides and three angles.*

To see clearly the steps the mind takes in working out any new lesson is a matter of much importance to

the teacher. He must know something of the steps or he can not teach at all; and other things equal, the more clearly the teacher has thought out the steps, the better will he teach the lesson.

Devices.—The devices are the various means used by the teacher to lead the mind of the learner to think and feel in the manner desired. In fact, the term *means* is a synonym for the term *devices.* Devices constitute a very important factor in teaching. There is opportunity for the exercise of rare judgment, tact, and skill in the selection of devices. When it is understood that questions, text-books, and reference books, maps, globes, and school apparatus in general; blocks, sticks, splints; and specimens natural and artificial are devices in teaching, something of their importance in school work becomes evident. Devices are so important that among many teachers *method means nothing more than the manner of manipulating devices.* However important they are, it must not be lost sight of that they are always determined in the light of the mental process they are to induce. They are means to an end, and naturally and rightly the end is always more important than the means.

Method as a Physical Process.—This is the physical aspect of the teaching act. *The physical method is the manipulation of devices, or means, in the teaching act.* It is, perhaps, using the term *method* in its most popular significance to think of it as meaning the physical process in teaching, external to the life of the learner. That is to say, it is using the term in the sense in which

most persons commonly use it in speaking and writing. This idea of method is the one usually held by such persons as have not made any careful study of what the term really ought to mean. There is a sort of indefiniteness in the minds of such persons as to just what they do mean by method. However, upon examination it will be found usually that the idea that method is the manner of doing some physical thing prevails, though even this is held in the mind more or less vaguely. From thinking of method in this sense there have arisen the following terms, *so-called methods*: Object Method, Concert Method, Consecutive Method, Promiscuous Method, Lecture Method, Socratic Method, and the Laboratory Method.

These all refer in some way to the manipulation of objects, questions, discussions, answers, etc., in the teaching act, and so are to be studied under method as a physical process.

The Object Method.—By this is meant the handling of objects by teacher and pupils in the process of teaching. It is good work if used judiciously, but may be abused and carried to the extreme. It has its proper place in teaching number work, primary reading, nature study, primary geography, and primary language.

The Concert Method.—The concert method means having students to answer questions, read, speak, etc., simultaneously in the recitation. There is much that may be said against the concert method, but very little to be said for it. It is objectionable because it (1) violates the law of self-activity; (2) stifles individual effort

and individual responsibility; (3) does not bring out clear, definite thinking nor answers; (4) gives students bad habits of study; and (5) leads to confusion, disorder, and chaotic class work.

The Consecutive Method.—The consecutive method of questions and answers in the recitation means beginning at some point, the head of the class or at the name beginning with *A*, and proceeding in some regular order back to the point of starting. In proceeding in recitation in this way the students know pretty well when the turn of each one will come.

This method, like the preceding one, has many things against it, but little to recommend it. It is objectionable because it leads to (1) bad habits of attention; (2) disorder and disorganization in the class; (3) bad methods of study; and (4) habits of idleness. However good a student may be, if, when he has answered a question, he knows to a certainty that he will not be called upon again for some time, the tendency is for him to relax his attention. If the student is not a good one, the consecutive method will make him worse. And since he is not held to close attention, he is prone to do something which will cause disorder and disorganization in the class. Idleness in the class is a direct result of inattention, and bad habits of study grow out of the student's being able to prepare just those points in the lesson which he has reckoned will come to him.

The Promiscuous Method. — The promiscuous method of asking questions and receiving answers in the recitation refers to distributing the questions so

that no student will know beforehand when he is to be called upon. This method unlike the two preceding has much to be said for it and little or nothing against it. It is desirable because it (1) fosters habits of attention and concentration; (2) is flexible and gives the teacher the best opportunities for helping the individual students; (3) fosters habits of order and organization in the class; (4) tends to industrious habits; (5) induces right methods of study. By the use of the promiscuous method students are helped in attending constantly to the question under consideration, in the careful preparation of the lessons as a whole, and in maintaining order and unity in the class. As a rule, the promiscuous method should be used, if best results are to be obtained in class work.

Lecture Method.—The lecture method refers to teaching by means of talks, or lectures. This method seems to be growing in popularity. It has even been said that the new education consists of the three L's: laboratory, lecture, and library. The tendency in favor of the lecture method is an unfortunate one for most of the students in the schools of the country. There are many kinds of school work to which it can not be adapted at all, and there is no kind of school work to which it is best adapted. If the lecture method has any legitimate place in school work, it is in the college and university. That stays with the child which he has an opportunity to see, to hear, to think about, and to talk about. However it may seem theoretically, it remains a fact that those things which are digged out by

the student, recited upon in the class, and discussed by questions and answers are the things which in the end stay with him and do him good. Certainly in the average teacher's school work the lecture method is, to say the least, to be used very sparingly, and with much caution if used at all. A besetting sin of most teachers already is, that they talk too much in teaching. Good teaching must give the mind of the learner sufficient time to connect the new with what is already in his mind, the old. The lecture method nearly always violates this principle.

The Socratic Method.—This method takes its name from Socrates, a Greek philosopher and teacher, born 469 B. C. It is sometimes called the *developing* method. It proceeds by the employment of subtle questions to lead the student to think what it is desired for him to think without telling him anything or just as little as possible. "The Socratic Method, more or less perfectly understood, has had great influence upon professional pedagogy. In many schools for the professional training of teachers, and in many school in charge of teachers professionally trained, systematic questioning of this sort is looked upon as ideal teaching; and there is no lack of conscientious endeavor to prepare for use in recitation series of questions which shall lead the child's mind to take the logical steps which given occasion requires. One who doubts the value of such systematic questioning may usually be converted by hearing a single typical recitation conducted by a master of the art. The power of such a recitation to touch, move,

chasten and direct the soul is so evident, that if Socrates and Plato had taught us nothing but how to do such work their fame as teachers would be justified."

The Laboratory Method.—This is often called the *Scientific Method,* or *Inductive Method,* and it means a procedure in which the learner is led to investigate and think for himself. It is opposed to taking things on mere authority without investigation, and to the text-book method. It proceeds by leading the learner to deal with the actual material of study rather than to deal with what some one has said about it. In botany, studied in this way, the learner deals with plants; in zoology, with animals; in grammar, with sentences and parts of sentences. This method has much to recommend it. 1. It fosters habits of free inquiry and free investigation—the scientific habit of mind. 2. It is the mind's natural way of learning. 3. It makes the learner self-directive and self-helpful. 4. It fixes with the learner right methods of study. 5. It gives the learner a critical attitude of mind. All these are characteristics of the good student.

Comparison of Teacher's and Learner's Method.—These two methods are alike as follows: 1. They are both mental, or spiritual, processes. 2. The mind of the learner and the mind of the teacher in general go through the same process in thinking the thing to be learned. 3. Both the teacher and the learner keep in mind to some extent the purpose of the process in the teaching act.

These two methods are different as follows: 1. The

teacher, in addition to thinking the truths to be taught must think the learner's thinking of them. 2. The teacher must think out the means, or devices, to be used in leading the learner to think the desired points of truth. 3. While both the teacher and the pupil keep in mind the purpose, the teacher sees it definitely or should do so, while the pupil sees it only vaguely. The teacher's method thus includes more than the learner's and is more complex.

Two Views of Method.—The foregoing study suggests to us that there are two views of method. It is unfortunate that educators hold these two views, as considerable confusion prevails because of this fact. One class of educators, those who have made little or no systematic study of method, mean by method simply the physical process in the act of teaching. A second class, those who have been special students of method, mean by method the triple process in the act of teaching.

Comparison of the Two Views.—In the study of method these two views may be called respectively the *popular view* and the *special view.* The popular view of method is thus that method is the manipulation of devices in the teaching act, and the special view is that method is the triple process in the teaching act.

The popular view of method constantly places the emphasis upon something external to the life of the learner. This has in the past led to much that was bad in teaching and is still doing so. The teacher loses sight thus of the fact that it is in the learner's

life that the educating process is carried on. He is prone to make the manipulating of means in some of its aspects the end in his teaching. He tends to forget that every question which arises concerning teaching must be settled from the standpoint of the effect upon the life of the learner; also, that the ultimate question is, How does this teaching affect the life of the learner?

The process in which the mind of the learner masters the new point of knowledge is the point of prime importance in the teaching act and the thing which is always to be emphasized in the study of method.

The popular view of method leads to almost hopeless confusion. Everyone holding this view who happens to use any new device in teaching may call it his method and give it a name. Since there is almost an infinite number of devices which may be used, there thus arises a multitude of so-called methods, which no teacher can or desires to keep informed upon. This of course leads to a hopelessly chaotic condition in the study of method.

The popular view of method has led to much disparagement of the study of method among persons who should be friendly to its study. These are oftentimes persons who are very good thinkers, but who have not been students of method. It is a common remark among this class of teachers that if one knows his subject well he can teach it well whether he is acquainted with current approved methods in the subject or not. These depreciating remarks made about method, which arise from a popular view of it, are a source of much

harm to the profession of teaching . This is true, because many teachers who would otherwise make a careful study of method and would receive the benefit which must come to the teacher thereby, are kept from beginning the study by this disparaging attitude. It may be safely said that there is need for no one thing among teachers more than an intensely professional spirit. So it seems strange that some *teachers* take pleasure in making depreciating remarks about method work. It is, however, probably to be explained from the lack of a true conception of method. This disparaging attitude toward method is not found to be the attitude of teachers who have been careful students of it and whose conception of it is the true one.

In summing this up the popular view of method is found to be responsible for the three following undesirable results: 1. It tends to place the emphasis in the teaching act upon the wrong aspect. 2. It leads to much confusion in the study of method. 3. It leads to disparagment of the study of method.

No Danger in Too Much Study.—It is not difficult to see that there is no danger of a teacher's devoting too much time to the study of method when one takes the proper view of method. The teacher can not study the process through which the mind goes in mastering any point of knowledge and the correct means to use in teaching such point of knowledge until he himself has the knowledge. For instance, the teacher can not see the mental steps the mind of the learner takes in learning the definition of the adjective and the proper means

to use in teaching it without first knowing the definition of the adjective. To know the method of teaching the definition of the adjective is to know the following three things: 1. The definition of an adjective. 2. The process the mind naturally employs in learning the definition of an adjective. 3. The correct devices, or means, to use to lead the learner's mind in learning the definition.

Further Illustration.—In the teaching of history this point becomes quite evident. The teacher who knows method in history knows the following three things: 1. The events of mankind in their relation to the struggles of the race for higher life; that is, history. 2. The natural process of the mind in learning history. 3. The best means, or devices, to use in teaching history. No teacher can teach history at all without a knowledge of the first, and it is equally clear to any person who will think, that no one can teach history well without a knowledge of the second and third.

Then to say a teacher can study method too much to teach well is equivalent to saying the following: a teacher may (1) know his subjects too well; (2) know too well the natural processes through which the mind goes in learning those subjects; and (3) know too well the proper devices to use in those subjects, to teach well.

Factors Determining Method.—About twenty-five years ago one of the leading educators of this country said "*The law in the mind and the thought in the thing studied determine the method.*" This statement of this

truth can not well be improved upon. It shows that the two following things are the factors in determining the method to be pursued in teaching any subject:

1. *The law in the mind.*
2. *The thought in the thing studied.*

That these two factors are the ones which determine *every* rational method makes the above stated truth a universal one.

The Law in the Mind.—The law in the mind means the general truths of mind—the forms of activity common to all minds.

By holding in mind that method is the triple activity in the process of teaching, it can easily be seen that this process must be largely what it is because of what the mind can do; that is, because of the laws governing mental activity.

Again, the method would be different in teaching the same subject-matter to a child of eight and to an adult, because it is a law of the mind that the child could perceive, remember, and imagine accurately, but that he could not reason so accurately, while the adult should be able to reason accurately.

The Thought in the Thing.—Each thing is the embodiment of a thought; that is, each thing has the power to suggest a thought to the mind. Evangeline, the rose, and the lily is thus the embodiment of thought.

By again remembering what method is, it can be seen readily that the process is different in teaching different things, and so the method is different. The processes in teaching the definition of the noun and in

teaching Maude Muller as to interpretation are widely different, because of the difference in the thought embodied in them. And since method is the triple process in the act of teaching, the method is widely different, the cause of the difference being the difference in the thought in the two things.

Thus the two things, *the mind of the learner,* and *the subject-matter,* determine the method.

The Truth Emphasized.—The whole study of general method emphasizes the truth that *teaching consists essentially in opening up the way for the realization of the child's inherent possibilities.*

"Truth is within ourselves; it takes no rise
From outward things whate'er you may believe.
There is an inmost center in us all,
Where truth abides in fullness, and around,
Wall upon wall, the gross flesh hems it in,
* * * * * * * * And to know
Rather consists in opening out a way
Whence the imprisoned splendor may escape,
Than in effecting entry for a light
Supposed to be without."

CHAPTER II.

THE PURPOSE OF READING.

Special Method.—Let the reader recall that there are five elements in the teacher's method. 1. Thinking the subject-matter. 2. Thinking the purpose. 3. Thinking the basis. 4. Thinking the steps. 5. Thinking the devices. There are these five elements in the teacher's method whether it is thought of in relation to a single lesson or a whole subject, as history or geography. Thus the plan of method in any particular subject is the study of (1) the purpose of it; (2) its subject-matter; (3) its basis; (4) its steps; and (5) its devices.

General Meaning of Purpose.—The purpose of any subject is the effect the proper pursuit of that subject has on the life of the learner. It is, of course, true that the pursuit of any subject will produce different effects upon the lives of different pupils depending upon the method in which the subject is pursued together with the individual differences of the students. But it remains that the only way there is of determining purpose is from the effect produced in the life of the learner. So in a general way it may be said *the purpose of reading as a school subject is the effect the proper pursuit of reading produces in the life of the learner.*

Importance of Definite Idea of Purpose.—Purpose is both beginning and end in every process of teaching.

It is beginning as an idea in the mind of the teacher; and it guides the process in its forward movement to its realization in the life of the learner, the end. It is of the highest importance to the teacher and pupils to have clearly and definitely in mind the purpose of any subject before starting to teach it. The evidence of this truth is that the purpose determines largely the following points:

1. The character of the process in teaching.
2. The means used in the process of teaching.
3. The end reached by the process of teaching.

A clear, definite, fervent purpose draws the teacher toward what should be accomplished as certainly as the earth draws all material things toward its center. A clear definite purpose in teaching saves loss of time, dissipation of energy, and disorganized, scrappy teaching.

Classes of Purpose.—For the purpose of help in study, the purposes, or aims, of reading may be classified into (1) *the main aim;* (2) *the subordinate aim.* The study of reading affects the life of the learner in general in two ways, one of which is more important than the other. This more important effect is the main aim, and the less important effect is the subordinate aim.

The Main Purpose.—There are three language units, the *word,* the *sentence,* and *discourse.* They had their origin as follows: the word was born of a desire to express an idea; the sentence was born of a desire to express a thought, and discourse was born of a desire to express a series of coherent thoughts. Thus the work of the word is to symbolize, or express, an idea;

the work of the sentence is to symbolize a thought; and the work of the discourse is to symbolize a series of connected thoughts.

The subject of reading deals with discourse as its language unit. Reading, of course, deals with the word and the sentence, too, but not as an ultimate whole. It deals with them as a part of discourse as the ultimate whole.

In teaching reading the most important thing to be done is to lead the learner into gaining the ability of getting the thought and feeling symbolized by pieces of printed and written discourse. This is called *interpreting* discourse, or *interpretation* of discourse. Thus the main purpose of reading may be stated as follows: *The main purpose of reading is to give the learner skill in the interpretation of discourse.* He should be skillful in the interpretation of discourse in order that he may come into the possession of the thought and feeling of the race as embodied in *history, literature,* and *science.*

It is worthy of note that reading is to give *skill* in the interpretation of discourse. This means the ability to interpret accurately and quickly. That the learner can interpret discourse is not sufficient. The world needs people who not only can do something, but who can do it accurately and readily, and this will be just the requirement in reading during the learner's life. Thus *skill* in interpretation is the main aim in teaching reading—the ability to interpret *accurately* and *quickly.*

The experience of the human race is the heritage

which it has left to each learner, and in order to come into possession of his own birthright he must have skill in interpretation. The experience of the race is recorded in *history, literature,* and *science.* He needs to interpret recorded history in order to come into possesssion of the experience of the race in its *actual struggle* for higher life. He wants to interpret literature in order to come into possession of the *ideal* struggle of the race for higher life. He wants to interpret science that he may learn the laws of life and the truths of the great laws and forces of nature to the end of conforming his actions to the highest welfare of his own life and the lives of others.

Evidence of the Main Purpose.—The question, Why is *skill in interpretation* to be considered the *main* purpose of reading? may be asked. And in answer the following may be said: All education is to prepare the learner for the duties of life. Preparation for life consists in part in learning to read, and reading should thus contribute its part in the process of education. The reading the learner will be called upon to do in life is predominantly *silent reading;* that is, *interpretation of discourse.* It is fair to say that more than seventy-five per cent. of the reading the average person will do in life will be merely the interpretation of discourse—the silent reading of the daily papers, magazines, works of fiction, works of science, literature, catalogues, schedules, etc. So skill in getting the thought from these various kinds of discourse will be the learner's greatest need which the subject of reading can supply. And since this is the greatest need to be supplied, the main pur-

pose of reading is to give skill in the interpretation of discourse.

The Subordinate Purpose of Reading.—But to give skill in the interpretation of discourse is not the only purpose of reading. Reading as a subject of study comprehends the oral expression of the thought and feeling embodied in discourse, and it is the purpose in the pursuit of reading to make the learner skillful in this also. So the subordinate purpose of reading may be stated as follows: *The subordinate purpose of reading is to give the learner skill in the oral expression, in the author's own words, of the thought and feeling symbolized by discourse.*

It is to be noted that the author's own words are to be employed in the oral expression, otherwise it can not be regarded as oral reading. If one should get well in mind the thought and feeling embodied in a piece of discourse, he might express this thought and feeling in his own language instead of the language of the author, but it could not properly be called oral reading.

The purpose, or aim, of reading may be summed up as follows:

I. Purpose of reading as a subject.

1^1. Main purpose: *To given the learner skill in the interpretation of discourse.* This, to the end of his coming into the possession of the thought and feeling of the race as embodied in history, literature and science.

2^1. Subordinate purpose: *To give the learner skill in the adequate oral expression, in the author's*

own words, of the thought and feeling symbolized by discourse.

Relation of These Purposes.—While these purposes are both important in reading, the purpose as to oral reading, the adequate oral expression of the thought and feeling in the author's own words, must be regarded as of less importance than the main purpose, skill in interpretation. This is true for two reasons: First, it is worth much more to the learner in life to be able to get accurately and readily the thought and feeling from all kinds of discourse than to read well orally. Secondly, correct interpretation precedes and is fundamental to correct oral reading. It is self-evident that the learner can not adequately express the thought and feeling embodied in discourse when he has not come into possession of that thought and feeling himself. Skill in oral reading presupposes skill in interpretation. There is no surer way for a teacher to fail in obtaining good oral expression than by fixing his eye upon the oral expression to such an extent that he loses sight of the importance of interpretation and so slights it. Mistakes in oral reading usually have their origin in mistakes in interpretation. Some have even asserted that if a student has the thought and feeling which are symbolized by the selection, he will *always* read it well orally. But this puts it too strong, though it certainly is true that the student will generally read well orally, if the interpretation has been well done.

The Purposes of Reading and Literature.—The question for study here is, Are the purposes of reading as a subject and of literature as a subject different in

any way, and if different, how? · A little careful thinking on this point will show that the purpose of reading is as different from the purpose of literature as the purpose of reading is different from the purpose of history. In fact they differ in very much the same way. Reading has for its purpose *to give skill* in interpretation, also, in oral expression, while literature has for its purpose the chastening and ennobling effect on the learner's life produced by the thought and feeling got. In reading the learner reads *that he may become skillful in reading.* In literature he reads for the *uplift* in his life given by the thought and feeling. It is not the main purpose of literature as a subject of study to give skill in reading, while in reading this is always the main thing to be aimed at. The aims of reading and literature are not at all identical as sometimes supposed.

CHAPTER III.

THE SUBJECT-MATTER OF READING.

The School Curriculum.—The school curriculum is the course of study for the school. It is made up of the various school subjects; as arithmetic, history, grammar, reading, spelling, geography, etc. The subjects in the school curriculum as a whole may be divided into groups for the purpose of study, as follows: 1. The *language* group, consisting of reading, writing, spelling, orthoepy, etymology, lexicology, grammar, literature, composition, rhetoric and primary language. 2. The *mathematical* group consisting of arithmetic, algebra, geometry, trigonometry, calculus and surveying. 3. The *natural science* group consisting of physiology, botany, zoology, psychology, chemistry, physics, astronomy, geography and geology. 4. The *history* group consisting of United States history, English history and general history. 5. The *art* group consisting of drawing and music.

The Language Group.—The language group is a group of subjects which have, in general, for their subject-matter language as a means for communicating, or expressing, thought. As was seen in previous study, there are three language units, the *word,* the *sentence,* and *discourse.* Some of the subjects in the language group deal with the word as their language unit and are thus known as *word studies;* one deals with the

sentence as its language unit and thus is known as a *sentence study;* and some deal with discourse as their language unit and thus are known as *discourse studies.* The word studies are spelling, orthoepy, etymology, and lexicology. Spelling is that word study which treats of the correct form of the written or printed word. Orthoepy is that word study which treats of the correct pronunciation of words. Etymology is that word study which treats of the derivation of words. Lexicology is that word study which treats of the meaning of words.

The sentence study is grammar. And grammar may be defined in general as the language subject which deals with the sentence as an instrument in communicating thought.

The discourse studies are reading, literature, rhetoric, composition, and primary language. Reading, literature, and rhetoric as the science of discourse deal with discourse as a finished product. Composition and primary language deal with discourse in the process of construction; that is, as an unfinished product.

The following diagram will reveal the relation among the subjects in the language group:

- Language Units
  - The Word
    - Spelling.
    - Orthoepy.
    - Etymology.
    - Lexicology.
  - The Sentence
    - Grammar.
  - Discourse
    - Finished
      - Reading.
      - Literature.
      - Rhetoric.
    - Unfinished
      - Composition.
      - Primary Language.

Definite Subject-Matter.—It will be remembered that every subject-matter consists of two things; first, *facts;* secondly, the *relation* in which these facts are to be considered. Then these two things are to be found in the subject-matter of reading. The facts to be dealt with in reading are facts of discourse. That is to say, reading as a subject deals with pieces of discourse, and it does this in two ways; first, as to its interpretation; secondly, as to the oral expression of its thought and feeling. Interpretation comes first in importance and first in time. Interpretation is fundamental to oral expression and is presupposed by it. There is no such thing as *adequate* oral expression without correct interpretation.

The following is the formal statement for the subject-matter of reading: *The subject-matter of reading is discourse primarily as to its interpretation and secondarily as to the adequate oral expression of its thought and feeling in the author's own words.*

It will be seen that this statement is very helpful to the teacher in that it is a constant guide to him in teaching reading. This is true because it tells him what to teach and the relation in which to teach it, that is, *how,* in general, to teach it.

Definition of Reading.—As has been repeatedly seen the main thing in reading is getting the thought and feeling of which discourse is the symbol. This is sometimes appropriately called *silent reading.* It matters not what it is called so long as teachers see that it is the important thing in reading, and thus is the thing to be emphasized. Oral expression of course is

important, but not so important as getting thought and feeling, because the learner will not use his ability in oral expression more than one-tenth as much in life as he will use his ability to interpret.

Reading is a discourse study and it is that one which deals with discourse in the two ways often indicated in these studies. The following is the formal definition for it: *Reading is that language study which deals with discourse as to its interpretation and the oral expression of its thought and feeling in the language of the author.*

It appears from this definition that there are two aspects of reading, *interpretation* and *oral expression.* These two aspects are usually called *silent reading* and *oral reading,* and they may be defined as follows: *Silent reading is the process of getting the thought and feeling embodied in discourse. Oral reading is the process of expressing aloud in the language of the author the thought and feeling embodied in discourse.*

CHAPTER IV.

BASIS AND STEPS IN READING.

Stages of Reading.—For the purpose of studying its method it is convenient to divide reading work into two stages; the first in a very general way, consisting of about the first three years of the child's reading work, and the second, in a general way, consisting of the rest of the work he does in reading in school. Various names are given to these two stages. The first stage has been called the *preparatory* stage, the *primary* stage, and the *word stage.* The term, preparatory stage, is a very appropriate term, because it is significant of the fact that the learner is preparing in this stage to do real reading later on. The second stage has been called the stage of *reading proper,* the *advanced* stage, and the *discourse* stage. The term, stage of reading proper, is perhaps the most significant term for this stage. It has been said that in the preparatory stage the child learns to read while in the stage of reading proper he reads to learn.

The Preparatory Stage.—This stage is characterized by the following points: 1. The written or printed word as an isolated thing is dealt with largely. 2. The oral expression is emphasized. 3. The scope of the work is narrow. 4. The pieces of discourse dealt with are not important because of the value of the thought they express.

In this stage the child learns a vocabulary of written or printed words as to meaning in order that he may recognize them in discourse later on, he also gets started right in oral expression; the amount of the work done in this stage is comparatively small; lastly, he will read little pieces of discourse most of which do not contain thought of permanent value. Of course, some pieces he studies will contain thought of permanent value, but these will be the exception rather than the rule in this stage of reading.

Illustration.—In this stage of the work the following words might be taught to the child: *hat, see, table, big, I, a, it, is, the, on,* and *black.* These would be taught to the child so that he could recognize them at sight, and know both the idea for which they are symbols and their correct pronunciation. After this was done the following little piece of discourse might be made of them and used as a reading lesson:

I see a hat.

It is on the table.

The hat is black.

The big black hat is on the table.

In the first part of this work the child is dealing with words as wholes. He is learning their meaning and correct pronunciation. In the second part he is dealing with a little piece of discourse whose thought is not of much value, but the oral expression of which is valuable at this time to the child.

The Stage of Reading Proper.—This stage is characterized by the following: 1. Discourse as a whole is dealt with predominantly. 2. The scope of the work in

this stage is wide. 3. Interpretation is emphasized. 4. The discourse which embodies thought valuable in itself is dealt with largely. There will perhaps be pieces dealt with whose thought is not very valuable, but these will be the exception rather than the rule.

The Starting Point.—The starting point in teaching reading to beginners will be determined by two things: 1. What the child knows when he comes to school which can be used as a foundation; that is, what basis the learner has when he comes to school. 2. What the first reading work to be learned is. That is to say, the learner is to be led to the *unknown* from the *nearest related* known.

Basis.—What does the average child at the age of six know that can be used as a basis in beginning to teach reading? The answer to this question is, that (1) he has a goodly stock of ideas of objects, attributes, and relations in the world about him; (2) he knows the oral expression, or oral word, for each of these ideas. Another way of saying this is, that the child has quite a good vocabulary of oral words.

There has been considerable systematic study recently of children's vocabularies with a view to finding out how many oral words the average child knows and can use correctly when he comes to school at the age of six. The following are some results of such study: The vocabulary of Portia Bell, when two years old, December 1, 1899, consisted of 1,073 words. The vocabulary of Lyle Hugart, Valparaiso, Ind., consisted, when she was two years and five months old, of 973 words. The vocabulary of Helen Neet, when four years

and eight months old, consisted of 1,468 words. Holden reports that his son spoke three hundred and ninety-seven words at the age of two. J. M. Greenwood, Superintendent of schools, Kansas City, reports a little girl's using five hundred words at the age of two years.

From these and other well known cases a safe inference is that the average child when he comes to school at the age of six has at least a vocabulary of from 1,200 to 1,500 words.

While it has been common knowledge of child study students for more than a decade that the average child of six has a vocabulary of from 1,200 words up, there are many persons to be found ready to dispute it, but not those acquainted with recent researches along this line. Too many good scientific men and women bear testimony to its correctness for it to be a mistake. It is disputed by those only who are ignorant of recent investigations on this point.

The First Unknown.—Having found out what the child knows which can be used as a basis in beginning reading, the next question is, What is the first unknown to be taught the child? Before the child can read at all he must know *printed* or *written* words at sight. Thus the first unknown in reading is a vocabulary of written or printed words. Accordingly the starting point in teaching reading is to teach the child a vocabulary of written or printed words.

Methods of Beginning.—Several methods have been used, and are still in use, in teaching the child this vocabulary of written or printed words. The following are the names of these methods:

1. The Alphabet Method.
2. The Synthetic Word Method.
3. The Sentence Method.
4. The Analytic Word Method.

Some time will be devoted to the study of each of these for the help it will give.

The Alphabet Method.—This is no doubt the oldest and very poorest method of teaching beginning reading. The Greeks in ancient Athens used this method 2,500 years ago.

In teaching by this method the teacher proceeds to teach the children the names of the letters of the alphabet by rote. The teacher points to a letter and pronounces its name and asks the child to pronounce it; then he points to another, pronounces its name, and asks the child to pronounce it; then another, and another, and so on through the alphabet. This kind of exercise is kept up from day to day until the child knows the names of the letters at sight, successively, promiscuously, or in an inverse order.

The next general line of work is to teach the children to spell orally small words made up, of course, of the letters whose names the children know. This line of work may or may not be begun before the children have learned the names of all the letters of the alphabet. Thus these two lines of work—(1) learning the names of the letters of the alphabet by rote; and (2) learning to spell orally—may overlap.

After having learned to spell orally, and pronounce a number of words in the manner indicated above, the children are started to reading small pieces of discourse

made up of the words they have been spelling orally. The children are encouraged to spell out the new words when they come to them according to this way of teaching reading.

There thus appear to be three general lines of work in teaching reading by the alphabet method, as follows:

1. Teaching the names of the letters by rote.
2. Teaching children to spell orally.
3. Having the children to read small pieces of discourse made up from the words whose pronunciation they have learned in the oral spelling.

It is evident that this must be a very slow and uninteresting way for the children to learn to read. In fact from a pedagogical point of view it has not one feature to recommend it. There are numerous points against it, but none for it. The following are some objections to it:

1. It is the most formal and driest sort of rote work.
2. It has little or no direct interest to the children.
3. The children have almost no basis for the work.
4. It ignores the child's vocabulary of oral words, the real basis for beginning reading work.
5. The names of the letters are a real hindrance to the child, since they do not make the oral word at all when put together.
6. The practice of having children to spell out words leads to halting, hesitating habits of reading.
7. It gives children a dislike for school work as a whole.

That the names of the letters are a real hindrance to the child appears from the fact that what he has reason to expect of them is not true at all; namely, that the names of the letters when put together make the oral word. If the names of the letters composed the oral words, *Katie, before, benign, enemy,* and *decay* would be spelled as follows: Kt, b4, b9, nme, dk.

Since there is no educationist of note to be found who advocates the Alphabet Method, one would not think that it is in use extensively at present. It, however, is still used in many schools by teachers not acquainted with current approved methods of teaching.

The Synthetic Word Method.—The term *synthetic* means *put together,* from synthesis, a uniting or putting together. So from the significance of the term, one would make the inference that something is put together to make up the word. And this inference is right, for words are built up of the sounds which compose them, according to this method. The *oral* word is thus built up, and, since the child is well acquainted with the oral word, he readily associates it with the printed or written word.

This method with slight variations has been given all the following names: *Synthetic Word Method, Phonic Method, Phonetic Method,* and *Pollard Method.*

The first line of work according to this method consists in teaching the children the sounds which the various letters of the alphabet symbolize. Since the vowels and some of the consonants symbolize more than one sound, the diacritical marks are used with the letter. The names of the letters are not learned at first, but

some play name is given them and the teacher and children play that the letter under consideration says so and so—the sound which it is the symbol of. Thus ā is called an old man, and the teacher and children play that he says ā ē; ă is called the little lamb, and the teacher and children play that it says ă, ă, ă; ä is called the little old woman and they play that she says ah, ah, ah; b is called the baby and they play that it says the b sound; p is called a steamboat; f is called a cat; v is called a bug; d is called a dove; z is called a bumble bee; g is called a frog; r is called a dog; th is called a goose; ch is called a locomotive, etc. All the symbols of the various sounds are thus given play names, and the children learn the sounds of each symbol in play.

A second line of work according to the synthetic word method is to teach the children the names of the letters. After the sounds of the symbols have been well learned as indicated, the teacher says to the children, "Now we have just been playing that this (ā) is an old man. Would you like to know its real name?" The children will want very much to know, and will say so. And the reason that they will want to know is, that naturally, as soon as the child knows the meaning of anything, he wants to know its name. The children in this case know the sounds the letters symbolize, which is the meaning of the letters and their only meaning, and so naturally want to know their right names. The teacher then gives them the right name of the letter or letters, and thereafter calls it by the right name when speaking of it with the children. The children are also encouraged to call it by the right name when speaking

of it. Thus they learn the name without any great special effort; that is, *incidentally.*

The names of the other letters of the alphabet are taught in a way similar to that of teaching the name of a. In such cases as the vowel a, the children are told that ā, ă, ä, â, etc., are different members of the *a family;* and similarly with *o, e, i,* etc.

A third line of work according to the synthetic word method is to teach the children to recognize printed or written words at sight *as the symbols of the oral words.*

The procedure is as follows: The teacher writes or prints the sentence, The hat is on the box, or some other little easy sentence on the board, marks it diacritically and asks the children to tell what it is. Each word is worked out first, then the whole story is asked for. If any trouble arises in working out the words, the teacher calls for the sound of each symbol separately. But it is much better to get the whole word, if possible. For instance, if the child could not pronounce the first word, "The," at sight, the teacher would write "Th" on the board, mark it, and ask for its sound; then for the sound of "e," then for the whole word. This makes it very easy for the child, since he well knows what sounds the various symbols represent.

After the child reads this first sentence, the teacher puts a second one on the board using several of the old words but also some new ones; then another sentence, and another, gradually introducing new words; then simple pieces of discourse containing mainly old words, but always introducing some new ones.

After a little, pieces of discourse gradually increasing in complexity are used, then the book is put into the hands of the pupils, and they move rapidly forward.

Merits and Demerits.—The Synthetic Word Method of teaching beginning reading has both its advantages and its disadvantages. The following may be considered points in its favor:

1. It takes advantage of the play instinct in children, and is thus very interesting to them.

2. It uses the basis consisting of a vocabulary of oral words which the children have when they come to school.

3. It tends to habits of clear, distinct enunciation and correct pronunciation, and makes the children self-helpful in pronunciation.

4. It makes the teaching of the diacritical marks easy.

The following may be noticed as objections to this method:

1. It is unnatural for the child to build up words from sounds; he learns them naturally as wholes first.

2. It leads the learner to make the association between the oral word and the printed or written word, while he should be making the association between the written or printed word and the idea of which it is the symbol.

3. He starts to read discourse in which the diacritical marks are used, which is not the kind he will be called upon to read throughout his life, and there is some loss of time and energy in making the change.

4. It is said to make poor spellers.

5. It tends to give children the idea that pronouncing words is reading whether they know what they mean or not. This does much to defeat the very purpose of reading, skill in interpretation and skill in oral expression.

It should, however, be said that many good teachers use this method in teaching beginning reading, and have remarkable success. Others succeed better by some other method.

A few years ago the Synthetic Word Method was very popular in many sections of the country, but recently it seems to have been losing in popularity and favor.

The Sentence Method.—By this method the child is taught whole sentences as symbols of thoughts. The child is in some way stimulated to think and to indicate to the teacher what his thought is. The teacher then places on the board the sentence which is the symbol of the thought and endeavors to lead the child to associate the thought and the symbol. The following will indicate the procedure:

For instance, the teacher asks the child with what he plays, and he says, "I play with a ball." The teacher then says, "I shall place on the board what you said," or something to that effect, and writes or prints on the board "I play with a ball." The teacher then asks the child to tell the story on the board. A second question is then asked; it may be, "What is the color of your ball?" The child answers "My ball is red." The teacher again says "I shall place on the board what

you said'' and writes or prints ''My ball is red.'' Then, as before, the teacher asks the child to tell the story. The teacher thus continues with sentences containing mainly old words but gradually introducing new ones till the child becomes familiar with a few sentences.

This method of teaching beginning reading is put pretty plainly by saying the teacher engages the children in some interesting conversation and then uses their sentences as material to start with in the reading work.

After a time the sentences with which the learner is familiar are broken up into their parts, *the words*, and the learner is drilled on them separately.

There are some advantages claimed for the sentence method as well as some objections urged against it.

The following are claimed as its points of merit:

1. It gives the learner's mind a tendency to grasp sentences as wholes in reading.

2. It tends to give the ability to interpret readily, and to communicate easily in reading.

This may all be said by saying it tends to make *light* readers. Some persons in reading interpret the selection word by word and are, for that reason, called *heavy* readers. Others grasp whole sentences, and some even whole paragraphs, in one act of the mind in interpreting discourse and are, for this reason, called light readers. That is to say, some use many times as much energy in reading as others use. It is claimed, and perhaps with some degree of validity, that the sentence method tends to make light readers. The following are some objections to the sentence method:

1. It is too hard for the child to learn sentences as wholes at the start.

2. It leads the child to make an indirect association between the symbol, the sentence, and the thought, while the association should be direct. This appears from the fact that the teacher gets the child to use the oral sentence, and tells him she is going to place on the board what he said or something of that kind. Thus the child must make the association between the oral sentence and the written or printed sentence, if he makes any association. But it is very desirable to have the association made between the written or printed sentence and the thought.

3. The sentence which the child learns as a whole is not what he will find used very often as he learned it throughout life. But if he learns a word as a whole, he will very frequently find it in after life just as he learned it.

4. The sentence method furnishes poor opportunities for making the association between the symbol and the idea or thought strong. But, if this association is not made strong, the child will not remember what the words and sentences are; that is, he will not recognize them at sight, the thing aimed at.

The Word Method.—This method is also frequently called the *analytic word method.* The term, analytic word method, is significant of the fact that according to this method words are learned as wholes at first and are analyzed later. Thus according to the word method written or printed words are taught as wholes as symbols of their ideas, or as to their meaning. After a

number of words have been taught as wholes these same written or printed words are analyzed into the parts which symbolize the parts of the oral words—the sounds.

Definite Procedure.—The first thing to be done in teaching reading by the analytic word method is to teach the children a vocabulary of written or printed words *as symbols of their ideas.* Various teachers teach with good success a vocabulary of from fifty to seventy-five words in this first work. The following will indicate in general the way it is done:

Let the lesson be to teach the children the written or printed word, *nest,* as a symbol of the idea, *nest.* The teacher presents an actual nest to the children and asks them to hold up their hands, if they know what it is; then a second nest is presented, and a third, and thus several. The teacher then places the word on the board calling the children's attention to it by saying "I am going to make a word on the blackboard which makes me think what I have in my hand." The teacher holds a nest in her hand in the meantime. The children are then asked if they know what the word is. They are then requested to find it in other places on the board, on charts, etc. They find it in other places, for the teacher has just put it in various places in large and small form, and in various colored chalk. The children thus make the association between the word and the idea it symbolizes. The steps the learner's mind takes in the above process are as follows:

1. The advance of the learner's mind in rethinking the old idea.

2. The advance of the learner's mind in adjusting itself to the symbol—the word.

3. The advance of the learner's mind in making the association between the idea and the symbol.

In the first of these steps the learner rethinks the old idea; that is, thinks it again. It is old to him, because he learned what a nest is sometime in his life before he came to school. The object of having the actual nest before him is to get him to rethink the old idea in a concrete, natural way. Several nests are presented in order that the idea may be general; that is, apply to any nest, instead of just one particular nest, which might result from presenting but one nest.

In the second step the child looks at the symbol, the word, gives his attention to it, and this is what is meant by *adjusting his mind to the symbol.* In leading the child to take this step and the next the word should be in several places on the board in different sizes and in different colors, and in other places; as on a chart, in the book, on cards, etc., in order that the symbol may be understood to be general; that is, the symbol common to any object of that class.

While all three of these steps are important, the last is the one upon which depends the value of all three. It is very desirable that the learner recognize the word at sight ever after having had this lesson. This he will surely do if the *association* is made strong enough. But if the association is not made strong, he is likely to forget the word before the next recitation. Thus special pains must be taken to have the associa-

tion strongly made. This may be done in the following three ways:

1. The teacher has the children to point out with a pointer the words on the board which say what she has, the teacher handling the object.

2. The teacher has the child to bring the object when she points to the symbol, the word.

It will appear that this is having the child to make the association in two ways: first, from the idea to the symbol; secondly, from the symbol to the idea. Both ways are important.

3. The teacher has the child find the symbol, the word, on cards, on charts, and in books.

It is to be noted that in this work the oral word is not used until the very close of the lesson. Then some child is called upon to tell what the oral word is; that is, pronounce it. The purpose of thus keeping the oral word in the background is, that the child may get into the habit of making the association direct between the written or printed symbol and the idea, and not indirect between the written or printed symbol and the oral word, and from the oral word to the idea. Thus if when the child sees the word, *nest*, the idea, *nest*, comes first into his mind, it is because the association has been made direct between the idea and the written or printed symbol. But if, when he sees the word, *nest*, the oral word comes first into his mind and then the idea, *nest*, it is because the association between the written or printed word and the idea has been made indirect.

Two evils are said to grow out of making the association between the written or printed word and the oral

word, and then between the oral word and the idea. They are as follows:

1. It tends to make heavy, slow, hesitating readers. It wastes energy.

2. It tends to give children the habit of using the vocal organs—working the lips, etc.—in silent reading.

Both of these habits are to be avoided as undesirable, the second being very annoying in school work.

Adjectives and Verbs.—The teaching of the word, *nest,* is a fair example of how nouns are to be taught in this first reading work. Adjectives and verbs are however not quite so easily taught, yet they are in general to be taught in the same way. That is to say, the learner is to be led to take the following three steps: 1. The rethinking the old idea. 2. Adjusting his mind to the symbol, the written or printed word. 3. Making the association strong between the idea and the symbol. The hard point in teaching these words is that of getting the child to rethink the old idea without giving him undue help. In some cases he may be led to take this step by the teacher's performing the action or having some child perform it and then asking for the word. For instance the teacher might run, and then ask how many know the word which says what she did.

The, A, An, Is, Can, On, In, etc.—Such words as these are the ones which are most difficult to teach well in this work in reading. The point of difficulty is in getting the learner to rethink the old idea. The following will indicate what is probably the best way to proceed with such words: Assuming that the child knows the words, *hat,* and *black,* they having been taught to

him before as indicated above, the teacher asks the child to tell her the color of the hat, and the child responds, "The hat is black." The teacher says "I shall place on the board the words which make me think what you said" and writes the sentence on the board. Some child is then asked to point out the old words, *hat,* and *black.* The children are then asked to tell the new words. In most cases they will thus get the new words at once. If they do not do so readily, the teacher asks some child to tell the story again while the others watch. Then some child is asked to tell what the first word, "The," says, then the next, and the next, and the next.

This is kept up until the children have well in mind *the* and *is.* Then this sentence, *The black hat is on the box,* may be obtained from the children by placing the black hat on the box, and by placing some differently colored hat on a chair. The teacher places the sentence on the board and thus teaches the word, *on,* in the same general way as *the* and *is* were taught.

It will be noticed that this way of teaching is a combination of the word and the sentence method.

The Rational Method, or Ward Method.—Just at present a way of teaching reading called the "Rational Method" or the "Ward Method" is attracting much undeserved attention. Under its catchy advertising denomination, "Rational Method," it seems to have cast a spell over many teachers to such an extent that they seem for the time bereft of common pedagogical sense.

As a matter of fact the so-called "Rational Method," is very *irrational* in a number of ways, and there is need for some one emphatically to say so.

Instead of its being a new method, as many believe, it is simply a combination of the Word Method and the Phonic Method, with most of the Word Method left out and the Phonic Method run mad.

Many irrational schemes are irrational because of being one-ideaed, and this is the sad affliction of this irrational method. It puts it mildly to say it makes a hobby of phonetic work in reading. It carries it to a distressing extremity; if not *ad infinitum,* at least *ad nauseam.*

If to read well, it were necessary only to pronounce words *mechanically* regardless of whether they are in the child's oral vocabulary or whether he gets a shade of meaning from them, then the "Ward Method" would be the *summum bonum* in teaching reading.

In brief, this method does three very bad things in teaching children reading:

1. It early makes the child mechanical in the pronunciation of words by marking diacritcally all the new words.

2. It gives the learner the wrong idea of what reading is. He gets the notion that pronouncing words is reading. It does this regardless of the frantic efforts of those who teach this way to prevent it.

3. It makes loud, boisterous, monotonous, mechanical oral readers, because of the emphasis it places upon the form to the neglect of adequate interpretation.

Fixing the Vocabulary in Mind.—One of the points which needs special emphasis in teaching the child a vocabulary of written and printed words is fixing each word well in the learner's mind as he proceeds. Unless

this is done the rest of the work is pretty much of a failure. There are two good ways of doing this, as follows: 1. A list of the words taught is kept in some convenient place on the board and reviewed from day to day. In this review the teacher may ask for a word and have some child point it out with a pointer, or the teacher may point to the word and ask some child to pronounce it. The former is perhaps the better way. 2. The second way to fix the vocabulary in the child's mind is to combine the words learned into small pieces of discourse, and use these pieces of discourse for drill in oral reading.

Both of these ways are based upon the principle of mind, *two or more things held together in consciousness the most often are, other things equal, the most strongly associated.*

Print and Script.—The question, Is print or script better to begin with? always comes up for consideration in studying method in reading. Some writers on methodology have made much of this point as if it were a very vital question in teaching primary reading. It is not a question of such tremendous importance as some would have us believe, and there is no help in exaggerating it. Perhaps the most satisfactory view is, that it makes little difference whether the teacher begins with script or print so long as she is skillful with the one which she does use. Many good and successful teachers prefer to begin with the script, but the same is true with respect to the print. There are points of advantage in either way. The following points seem to favor beginning with print:

1. The most of the learner's reading in life will be the reading of print, and so this is the most important for him to learn.

2. If the learner first learns script he must soon change from script to print, which will offer some difficulty and some loss of time and energy.

Beginning with script has the following to be said in its favor:

1. It is easier for the teacher and makes the busy work more easy to conduct.

2. It tends to make equally good readers of print and script.

The argument that children should not begin to learn printed words because we do not want to make printing presses of them has nothing in it. It does not follow at all that the child must learn to make printed words because he learns to recognize them at sight.

Personally I prefer to begin with the print for the first dozen or so lessons, then introduce the script and carry the two along side by side.

Reading Simple Pieces of Discourse.—Just as soon as enough written or printed words have been well learned, small pieces of discourse are formed from them for the children. These pieces are used for reading lessons to get the children started. Then a little later they begin reading from the chart or first reader. The interpretation of these pieces of discourse is easy, and the thoughts they express are usually of no permanent value, but *the oral expression is very important.* The child here begins to form his habits of oral expression, and whether he ever becomes a good reader or not de-

pends very largely upon these habits. However much trouble it may be, the learner must not be permitted to form habits of halting, hesitating, monotonous oral expression. This is a critical period in the teaching of primary reading.

Analytic Work.—It will be kept in mind that we are studying what is called the *Analytic Word Method* of teaching primary reading. But up to the present place no analytic work has been studied. This is not, however, because no analytic work should be done in the actual work in reading up to this place, but because in the study the points must be taken consecutively, and the topic, *Analytic Work,* has just now been reached.

The analysis work, which is to be carried along with much emphasis through the entire preparatory stage of reading and further if necessary, consists in separating the oral words corresponding to the written and printed words which the child has been studying, into their parts, the sounds, and the association of these sounds with their symbols; that is, with the corresponding parts of the written or printed word.

The nature of this work will appear from the following: The child has learned the printed and written word, *box,* as a symbol for an idea, in the way previously shown. The teacher writes the word on the board and has some child to pronounce it, thus getting the oral word before the class. The children are then led to see the first sound in the oral word and to make it; then the second, and the third; next, they are led to see that *b* symbolizes the first sound; *o,* the second,

and *x*, the third sound. The steps taken by the mind of the learner with each word are as follows:

1. The advance of the learner's mind in rethinking the oral word.

2. The advance of the learner's mind in analyzing the oral word into its sounds.

3. The advance of the learner's mind in analyzing the written word into the parts corresponding to the sounds.

4. The advance of the learner's mind in making the association between the sounds and their symbols.

These steps are of course pretty general. A close analysis would break up each one into several smaller steps. But these four are the general steps in the analysis of any word.

First Step.—The way the children are led to take the first step is as follows: the word is written on the board, and the class is asked how many know it. Some one of the children is selected to pronounce it. The test of his rethinking the oral word is his ability to pronounce it.

Second Step.—The analysis of the oral word into its sounds is a step of some difficulty with the first few words, but offers little difficulty thereafter. Perhaps the best way to proceed at first is for the *teacher* to analyze the oral word into its sounds and have the children watch and give the analysis by imitation. This will probably be necessary with only a few words, for the children gain in ability very rapidly in this kind of work. Soon they are able to give the analysis by themselves.

Third and Fourth Steps.—The third and fourth steps may best be taken together. In these steps the child is led to see that certain parts of the written word symbolize the different sounds in the oral word. The teacher asks him what he thinks says the first sound in the oral word *box;* what, the second; and what the third, the teacher producing the sounds in order. He infers that *b* symbolizes the first sound in the oral word; *o,* the second; and *x,* the third. The teacher tells him this is right and thus gives him a start. He soon gains much in such work by persistent and systematic practice.

Time of Doing the Analytic Work.—This analytic work may well be begun almost from the first; that is, as soon as the child has learned a dozen or so words as symbols of their ideas; and it should be carried on through the entire first stage of reading with considerable emphasis, at the least. It will probably be found highly advantageous to do a good deal of it at various places through the second stage of reading.

The Purpose of the Analytic Work.—The analytic work is an extremely important kind of work in teaching reading, and a kind of work that is not generally well enough done. Its importance is manifest in the following purposes of it:

1. It makes the learner self-helpful in the pronunciation of new words.

2. It enables him, to a large extent, to work out the new words with respect to pronunciation as he comes to them in his reading lessons.

3. It helps the learner to form the habit of distinct

enunciation, and correct pronunciation in oral reading and speaking.

4. It enables the learner to form these habits, to a large extent, from the relations of the letters in the words and sentences, and not by the use of the diacritical marks or the dictionary.

Learning the Alphabet.—When and how may the names of the letters best be taught? is a question worthy of some attention. It is safe to say that there is no good reason for teaching them till the learner has some use for them. And the learner has no use for them until he knows their meaning. This, however, he knows as soon as he knows the sound the letter symbolizes, for the *sound* the letter symbolizes is its meaning. Then it appears that the proper place to teach the letter names is in connection with the analytic work. The following will illustrate:

When in the analytic work with the word, *box,* for instance, the learner points to *b* as symbolizing the first sound, *o* as symbolizing the second sound, and *x* as symbolizing the third sound, the teacher asks him if he would like to know their names. He will want to know their names now, since he has their meaning. The teacher tells him their names and thereafter uses them when she has occasion to do so. The same process, in substance, is carried out in teaching other words as in teaching *box.* This, it will be observed, is the way the child naturally learns all names.

In this way the child learns the letter names without any special effort; that is *incidentally* as he needs them. After having learned them in this way, he is

drilled upon them arranged *alphabetically*. He will need to know them *alphabetically* in order to use with facility dictionaries, indexes, catalogues, time tables, etc., throughout his life.

Teaching the names of the letters in this way is infinitely better than teaching them by rote, the time-honored way.

Working Out New Words as to Pronunciation.—In taking up new lessons for study in the first stage of reading, and before the child has learned to use the dictionary well, in the second stage words new to the children with respect to pronunciation will be met with, and the right way to deal with these words has been a problem not solved by most teachers. It is safe to lay down the law, *the work must be of such a character as to lead the learners to do the work for themselves and to make them self-helpful* in so far as possible, in dealing with these words. Work of the following character will do this to a large extent: in general, the learner is to be led to work out the pronunciation of the new words by seeing old ones or parts of old ones whose pronunciation he knows, in the new words. For instance, *ago, things, called, loved,* and *blue-bell* are the new words in an advance reading lesson. The children have already had the words, *a, go, think, running, call, played, love, has, blue* and *bell.* So if the children can be led to put together, *a* and *go; th, ing* and *s; call* and *ed; love* and *d; blue* and *bell,* they will have the pronunciation of the new words. *The child, however, will not do this without lessons leading him into the habit of doing so.*

In pursuit of this idea the teacher makes some such assignment as the following to the children:

1. "Study the lesson through carefully and make a list of all the new words and all the old ones you can not pronounce."

2. "See how many you can work out the pronunciation of by hunting for old words or parts of old words in them."

3. "Make a list of words which you think will help in pronouncing the words you can not pronounce."

Such an assignment as this is good for the following three reasons:

1. It gives the learner something definite to do in studying the new words.

2. It tends to lead the child into the habit of helping himself in pronouncing new words.

3. It leads the learner into the habit of seeing the old in the new, thus reviewing the old in the very best way while acquiring the new.

If the children do not have the pronunciation of the words worked out, and they will not ordinarily have all worked out, the teacher places one of the words on the board, and asks if any one can see anything old in it. If they do not, the teacher writes some old word on the board which will give them a start and so on until all the word is worked out; then the next word, and the next till all the words have been pronounced by the children.

The new words the children meet are of two kinds:

1. Those that can be pronounced by analogy, such as *things, called, mother,* etc.

2. Those that can not be pronounced by analogy, such as *through, women, tough, etc.*

The first class are best taught as indicated above; that is, by leading the learner to see old words or parts of old words in them.

The second class are best taught in the same way as *the, is, can, a,* and *an* were taught; that is, by a combination of the word and sentence methods.

Use of Dictionary.—The learner is taught to use the dictionary as soon as possible, in his reading work. The object of doing this is that he may early help himself in getting the meaning and pronunciation of new words which he meets. But too early attempt to do this is not fruitful. Children usually do not use the dictionary advantageously before the fourth or fifth year of school. In order to use the dictionary well, the child must know the diacritical marks.

Diacritical Marks.—Diacritical marks are characters which *indicate* the sounds the various letters symbolize when used in words. They are the macron (—), the breve (◡), the caret (^), the dieresis (¨), the semi-dieresis (·), the tilde (~), the cedilla (¸), the suspended bar (⊥).

The teaching of the diacritical marks is work which belongs to reading and primary language and not to spelling. And the main purpose of such work is to give children the ability *to use the dictionary* intelligently and with facility in pronouncing and getting the meaning of words.

If the analysis of words has been thoroughly done, the teaching of the diacritical marks offers little or no

difficulty. This work is begun near the beginning of the third year and is continued until it is *mastered.*

The methods of teaching reading discussed apply mainly to the preparatory stage of reading. Of these the analytic word method combined with the sentence method is the most pedagogical.

The Second Stage of Reading.—In the first stage of reading the emphasis is placed upon *oral expression.* The greatest effort is made to get the learner started in correct habits of oral expression. The pieces of discourse dealt with are not, as a rule, important because of the value of the thought they symbolize.

In the second stage of reading the emphasis is placed upon the *interpretation* of the discourse; that is, the greatest effort is made to give the learner *skill* in getting the thought and feeling the discourse symbolizes. And the discourse dealt with in the main is important because of the value of the thought and feeling it expresses.

Symbolic and Didactic Discourse.—In the second stage of reading both symbolic and didactic discourse are dealt with, and thus their nature is to be studied in method in reading.

Didactic discourse, also called scientific discourse, sets forth truth directly. For instance, if one should say that that man is irritable, ferocious, and cruel, the characteristics of the man are set forth directly and the sentence is a little example of didactic discourse. But if one should say that that man is a tiger, the characteristics of the man are set forth indirectly by means

of a type, and the sentence is a small example of symbolic discourse. The tiger is the symbol, or type.

Symbolic discourse, also called literary discourse, is that kind of discourse which sets forth truth indirectly by means of a symbol, or type. The following will illustrate the two kinds:

Whenever a person desires anything very much indeed but finds out certainly he can not have it, he immediately begins to see the undesirable characteristics of it. He begins to under-estimate it. This is the human soul's way of recovery after disappointment.

The above is purely didactic.

Once upon a time a fox saw some ripe luscious grapes growing upon a vine, and he jumped towards them again and again with the exertion of all his strength in his effort to get them. At length tired out with his useless labor, he said, as he was departing, "they are sour anyhow and I would not pick them up if I should find them in the road."

The above is purely symbolic.

"Excelsior," "Evangeline," "The Great Stone Face," and "The Golden Touch" are other examples of symbolic discourse.

Steps in Symbolic Discourse.—In mastering a piece of symbolic discourse as a reading lesson evidently the first thing the learner meets with is the language, whose mastery is the first step. The language directly reveals the picture, or symbol, the mastery of which is the second step. The symbol suggests the leading thought, or theme, whose mastery is the third step. A fourth step is the mastery of the *adaptation* of the symbol to the

theme. And the last step is the oral reading of the selection. Thus every reading lesson which deals with symbolic discourse is like every other one in that the mind takes the following steps in mastering it:

1. The mastery of the language.
2. The mastery of the symbol, or picture.
3. The mastery of the leading thought.
4. The mastery of the adaptation of the symbol to the leading thought.
5. The adequate oral expression of the thought and feeling in the author's own words.

The language is mastered in two ways: first, the meaning of the different words in the selection; secondly, the pronunciation of the different words in the selection are to be got in mind.

The second step, the mastery of the symbol, means that the details of the picture directly presented by the language are accurately and vividly held in mind. There are several terms used as synonyms for *symbol.* The terms, *picture, type, embodiment,* and *conception,* are thus all more or less in use.

This second step is an important one in teaching reading. If the children are ever to learn to read carefully so as to get what there is in a piece of discourse without going over it again and again, they must be held conscientiously to mastering the details of the picture or symbol. Many teachers *fail sadly* in teaching this second step well.

Every selection which is organized and is well worth spending one's time on as a reading lesson has some leading thought around which all the subordinate

thoughts cluster. This leading thought is the most important thing in the selection. It is the end and all the rest of the selection is means. It is the message the selection bears to humanity, and the understanding of it is absolutely necessary to the correct interpretation of the selection. It is the key to the interpretation. Therefore, the mastery of the theme in teaching or learning a selection is a very important step, too.

The adaptation of the symbol to the theme is its fitness to suggest the theme. Thus the various parts of the picture are chosen because they are good to suggest the theme and make it strong. For illustration, if one says a man is a donkey, he means that the donkey, the symbol, is well adapted to symbolize the stubbornness of the man, the leading thought. Again, if one wished to say very strongly that a certain man is deceitful, and thus should say *that man is a hog,* the symbol, hog, would not be adapted at all to the leading thought. In leading the learner in mastering the adaptation of the symbol to the theme opportunities present themselves in abundance for rare skill, tact, and artistic teaching.

After the four steps studied above have been well taken the learner has well in mind the thought and feeling of the selection, and is thus in the proper attitude of mind to read well the selection orally. This he does as the last step.

Steps in Didactic Discourse.—The steps the mind takes in mastering a piece of didactic discourse are not quite the same as those it takes in mastering a selection of symbolic discourse. Didactic discourse has no type, or symbol; and since this is true, steps two and four in

dealing with symbolic discourse are absent in dealing with didactic discourse. And step three is not quite the same, for many pieces of didactic discourse do not have a central thought in any such true sense as symbolic discourse. Thus the third step is more *the mastery of the thought in general* than the mastery of a *central* thought.

The mind thus in mastering selections of didactic discourse takes the following steps:

1. The mastery of the language.
2. The mastery of the thought.
3. The oral expression of the thought and feeling in the author's words.

Summary.—The following will in general summarize the steps in teaching reading, the method employed in the first stage being the analytic word method:

I. First Stage.

1^1. A mastery of a vocabulary of words as symbols of their ideas.

1^2. Steps with each word.

1^3. The advance of the learner's mind in rethinking the old idea.

2^3. The advance of the learner's mind in adjusting itself to the written or printed symbol.

3^3. The advance of the learner's mind in associating the symbol and the idea.

2^1. The interpretation and oral reading of small pieces of discourse made up from the words which the learner has in his vocabulary.

3^1. A line of analysis work.

1^2. Steps with each word.

1^3. The advance of the learner's mind in rethinking the oral word.

2^3. The advance of the learner's mind in analyzing the oral word into its sounds.

3^3. The advance of the learner's mind in analyzing the written word into the symbols of the sounds.

4^3. The advance of the learner's mind in associating the sounds with their symbols.

4^1. Teaching the names of the letters of the alphabet.

5^1. Teaching the diacritical marks.

II. Second Stage.

1^1. The mastery of selections of symbolic discourse.

1^2. Steps.

1^3. Mastery of the language.

2^3. Mastery of the type, or picture.

3^3. Mastery of the theme, or central thought.

4^3. Mastery of the adaptation of the type to the theme.

5^3. The adequate oral expression of the thought and feeling the discourse embodies in the words of the author.

2^1. The mastery of selections of didactic discourse.

1^2. Steps.

1^3. Mastery of the language.

2^3. Mastery of the thought.

3^3. The adequate oral reading.

CHAPTER V.

ILLUSTRATIONS.

Advantages.—Good teaching always demands a variety of concrete illustrations, and teaching not abounding in concrete illustrations is always found to lack much in forcefulness and effectiveness. Concrete illustrations make the thoughts stand out in clear relief and bring the desired thruths before the mind with such force and vividness that they are easily retained and reproduced. Therefore, for the help that comes from the study some concrete illustrations will be considered in this chapter.

EXCELSIOR.

The shades of night were falling fast,
As through an Alpine village passed
A youth, who bore, mid snow and ice,
A banner with the strange device,
Excelsior!

His brow was sad; his eye beneath
Flashed like a falchion from its sheath,
And like a silver clarion rung
The accents of that unknown tongue,
Excelsior!

In happy homes he saw the light
Of household fires gleam warm and bright;

Above, the spectral glaciers shone,
And from his lips escaped a groan,
Excelsior!

"Try not the Pass!" the old man said;
"Dark lowers the tempest overhead,
The roaring torrent is deep and wide!"
And loud that clarion voice replied,
Excelsior!

"Oh stay," the maiden said, "and rest
Thy weary head upon this breast!"
A tear stood in his bright blue eye,
But still he answered with a sigh,
Excelsior!

"Beware the pinetree's withered branch!
Beware the awful avalanche!"
This was the peasant's last Good-night,
A voice replied, far up the height,
Excelsior!

At break of day, as heavenward,
The pious monks of Saint Bernard
Uttered the oft-repeated prayer,
A voice cried through the startled air,
Excelsior!

A traveler, by the faithful hound,
Half-buried in the snow was found,
Still grasping in his hand of ice
That banner with the strange device,
Excelsior!

There in the twilight cold and gray,
Lifeless, but beautiful he lay,
And from the sky, serene and far,
A voice fell, like a falling star,
Excelsior!

The mind, if left to pursue its own course in mastering this selection will in general do two things; first, it will read the selection through as a whole to get a general idea of it; secondly, it will study it through in detail taking the five steps before indicated in mastering a selection of symbolic discourse.

In the mastery of the language the meaning of the words, *Alpine, Excelsior, falchion, clarion, spectral, glaciers, lowers, avalanche, monks, Saint Bernard,* etc., will be learned; also, the words, *passed, Excelsior, Alpine, beneath, falchion, glaciers, pass, lowers, blue,* etc., will be mastered as to pronunciation.

In the mastery of the picture, or type, the youth with his various attributes, the mountains, the Alpine village, the banner, the happy homes, the glaciers, the old man, the tempest, the roaring torrent, the maiden, the pine-tree's withered branch, the avalanche, the peasant, the monks of Saint Bernard, etc., will be got well in mind in their proper relation.

In the mastery of the theme the real meaning of this whole picture will be worked out. What is said in the selection is in all probability not *literally* true, but it points to a truth beyond the literal meaning. Longfellow is not simply telling about a rash young man who lost his life in climbing the Alps mountains. The selection bears a message to humanity and the picture, or type, suggests this message. Understanding and appreciating this message is what is meant by mastering the theme.

In the mastery of the adaptation of the picture to the theme the reason for choosing a youth, for starting

him through the village at night fall, for having him climb a mountain, and for having him lose his life will be shown. Also, the significance of the banner, the village, the maiden, the old man, the pass, the glacier, the torrent, the awful avalanche, the peasant, the monks, the falling voice, etc., will be shown as suggesting and emphasizing the theme.

The oral reading of the selection is the last step and should be done carefully and conscientiously. If the other four steps have been well done the learner will be in the best possible attitude of mind for the practice in oral expression.

The following is an assignment of such a character in general as to lead the learner in working through Excelsior as a reading lesson:

1. Read the selection through as a whole very carefully and try to get a general idea of its meaning.

2. Master the meaning and pronunciation of any unfamiliar words in the selection.

3. Get in mind accurately the details of the picture presented in this selection.

4. What is the leading thought suggested in this selection? Give good reasons for your opinions.

5. Why is a youth chosen?

6. Enumerate the characteristics of the youth and tell why each is given.

7. What is the significance of the happy homes? of the maiden?

8. What is the significance of the lowering tempest, roaring torrents, spectral glaciers, pine-tree's withered branch, and the awful avalanche?

9. Why must the youth lose his life?

10. What is the meaning of a voice that fell, like a falling star?

11. Read orally the selection so as to express the meaning as you understand it.

ERASTUS WREN'S VIRTUE.

Erastus Wren was virtuous, in spirit and in letter,
Was very virtuous and good, and daily growing better;
And so immaculate was he, his neighbors, men and maids,
They daily looked to see the wings sprout from his shoulder blades.

He wouldn't eat rice; he wouldn't drink tea no more than he'd drink rum,
For they were grown by heathen hands in darkest heathendom;
He'd have no fellowship, he said, with men who thus behaved,
Nor boom the industries of men so totally depraved.

So he lived devoid of coffee and of cocoanuts and spice,
And when his folks had lemon pie he never touched a slice;
And he'd never taste of pudding; nay, unless, beyond a doubt,
The cook deposed and guaranteed all nutmeg was left out.

He wouldn't wear cotton shirts at all, because he was afraid
The girls who work in cotton mills are sometimes underpaid;
And once he thought he'd wear no wool, it gave him such a shock
When he was told that one black sheep was found in every flock.

And he never read the papers, and he never would begin,
He said they reeked with wickedness, iniquity and sin;
He wouldn't consult the dictionary, nor turn a leaf, not he,
Because he said it held bad words no good man ought to see.

There was no food for him to eat, no clothes for him to wear,
No mental sustenance at all to suit him anywhere;
And so he died,—the thing to do to round out his perfection,—
And not a living man arose to make the least objection..

Assignment.—The following is a general assignment adapted to lead the learner in mastering the above selection as a reading lesson:

1. Read the selection carefully as a whole so as to get a general idea of it.
2. Master any unfamiliar words in it both as to meaning and pronunciation.
3. Get carefully in mind the characteristics of Erastus Wren.
4. What is the leading thought of the selection? Give reasons for your opinion.
5. Show the fitness of the picture to suggest the leading thought.
6. Read the selection well orally.

THE GOLDEN TOUCH.

King Midas loved money very much, but not quite as well as he loved his little child, Mary. He thought yellow gold was the most beautiful thing he had ever seen, and he wanted to get as much of it as he could. Yet King Midas

was a very rich man. He had boxes of this yellow money, and every day he looked at it for a long time.

Once when he was looking at his gold, and thinking how beautiful it was, he saw a man standing by his side. "You are very rich, King Midas," said the man. "Well, yes; I have some money," said the King. "Do you care for more?" said the man. "Oh, yes," said King Midas, "I have only a very little, after all." "Well," said the man, "I shall be glad to help you. You make any wish you like, and I will grant it to you." King Midas thought a long time about this wish. What could he wish that would give him all the gold he wanted? At last he had a happy thought. He would wish that everything he should touch might turn to gold. Then he told the man his wish. How he laughed to hear that this rich old king still wanted so much more money! "At sunrise to-morrow morning," said the man, "your wish shall be granted. Then everything you touch shall turn to gold. I will give you the Golden Touch."

The old king slept very little that night. As soon as the sun rose in the morning, he put his hand on his bed. His wish had been granted. There was his bed turning into yellow gold. When he put on his clothes, they, too, were gold. He took up a book on the table, and its cover became yellow, and he saw it had golden leaves. He went around the room and touched everything. Each turned to gold, and he thought his room was very beautiful.

The King was very happy when he called little Mary to come and sit down and eat. As soon as the King touched his cup, it was gold. When he took a bite of fish, it, too, turned into gold, and he could not eat it. Then he tried to eat his egg and bread, but he could not. They were hard, yellow gold. Poor King Midas was very hungry! Everything was so beautiful, he was so rich, and yet he could not eat a bite! "What is the matter, father? Why don't you eat?" said little Mary. And she came and stood by his side. The King kissed her and said, "My

dear little girl, go and eat your bread and milk." But what was the matter? The sweet, rosy face was now yellow, and the soft, pretty curls were hard. The little girl he had loved so well, King Midas had turned into gold. "What have I done?" cried the poor king. "My dear little child! My Mary!"

Just then he saw the same man standing at his side who had given him the Golden Touch. "Well, King Midas, how do you like the Golden Touch?" said the man. "I am so unhappy!" said the King, still looking at his little daughter. "Unhappy!" said the man. "Did I not do as I said I would? Do you wish more gold still?" "Oh, no, no!" said Midas. "I have lost what I loved more than gold,—my little child, Mary! Give her back to me alive and well!" "Ah," said the man, "which is better, the gift of the Golden Touch or a cup of cold water?" "The cup of water," said Midas. "And which is the better, the Golden Touch or your own little Mary as she used to be?" "My child, my dear child!" cried the king. "I would not give one of her little soft curls for all the gold you might give me!" "Tell me, King Midas," said the man, "shall I take away the Golden Touch?" "Oh, yes, indeed!" said the king. "You are a better man than you were yesterday, King Midas, and I will take away the gift of the Golden Touch, if you wish. Go to the brook just back of the garden and wash, and bring a cup of the same water back with you."

The King lost no time in going to the brook. He jumped into the water, saying, "I do hope this will wash away the Golden Touch. Why did I ever want it I should like to know?" He filled the cup, and walked back to the house very fast. The first thing he did was to put water on his little Mary. Then the old rosy color came back, she laughed, and was his own loving child again. Then he went about the house and made everything as it was before he had turned it into gold. The old King never wished again for the Golden Touch.

The above selection is a piece of symbolic discourse, though it is not poetry. The steps in teaching it are the same in general as they are in teaching any other piece of symbolic discourse.

With children of the third or fourth year these steps would have to be worked out slowly, many questions being given by the teacher in bringing out each point. The following assignment is in general adapted to third or fourth grade pupils:

1. Read the whole lesson through and tell me what you learned about it.

2. Make a list of any new words or old ones whose meaning or pronunciation you do not know. Work out the pronunciation of as many as you can by hunting for old words or parts of old words in them. Make a list of old words which you think will help in pronouncing the new ones.

3. How many persons are spoken of? What are their names? Tell all that is said about each one.

4. Do you believe this story? Why? Does it tell us anything true? What?

5. Why does this story have a king in it? Why gold? Why a man who could give the king the Golden Touch? Why a little girl?

6. Read it orally so as to bring out the meaning as you understand it.

ORCHARD LIFE.

An orchard is an excellent place for Nature Study. Here live many kinds of tiny creatures, each kind with its own peculiar mode of life. Some have comparatively sim-

ple life histories, merely eating and growing and finally laying eggs for another generation; but others undergo wonderful transformations, and still others exhibit an instinct that seems much like reason. And even those that appear to live the most humdrum existence are well worthy of careful study, for their lives are never as simple as they seem at first sight.

By a study of orchard life there may be learned also much that is of immediate practical importance; some of the most dreaded insect pests infest fruit trees. A thorough knowledge of the ways of these depredators enables us to plan successfully methods of destroying them, and thus to prevent their ravages.

In the mastery of the above selection there are in general three steps which the mind will take: 1. The mastery of the language. 2. The mastery of the thought. 3. The oral expression of the thought in the words of the author. There are but these three steps because the selection is purely didactic.

A question arises as to the nature of the discourse which should compose the text-book in reading. It is probably true that such books should be made up largely of literary, or symbolic discourse, and some even say that no other kind of discourse properly has a place in text-books on reading. But if it be true that the selections the learner reads in school are to be of the kinds he will read throughout his life, in order to fit him for all kinds of reading, a reading book must contain selections of both symbolic and didactic discourse.

Sight Reading.—There is a proper place in teaching reading for what is called sight reading; that is, the reading of selections orally without having studied them beforehand. Work of this kind makes the learner

ready in interpretation and in adequate oral communication. A goodly quantity of this work may be done profitably in successful work in teaching reading.

ABOU BEN ADHEIM.

The selection following is a fine selection of symbolic discourse suitable to seventh or eighth year pupils:

Abou Ben Adhem—may his tribe increase!
Awoke one night from a deep dream of peace,
And saw within the moonlight in his room,
Making it rich and like a lily in bloom,
An angel writing in a book of gold.

Exceeding peace had made Ben Adhem bold;
And to the presence in the room he said,
"What writest thou?" The vision raised its head,
And with a look made of all sweet accord,
Answered, "The names of those who love the Lord."

"And is mine one?" said Abou. "Nay, not so,"
Replied the angel. Abou spoke more low,
But cheerly still; and said, "I pray thee, then,
Write me as one that loves his fellow-men."

The angel wrote and vanished. The next night
It came again, with a great wakening light,
And showed the names whom love of God had blessed;
And, lo! Ben Adhem's name led all the rest.

CHAPTER VI.

COMMON ERRORS IN TEACHING READING.

Opportunities for.—While reading has been in the school curriculum as long as any subject, and is as generally taught as any school subject, contrary to the popular opinion, it is by no means an easy subject to teach well. The opportunities for errors are many, and because of this reading is generally taught much more poorly than is commonly supposed.

The following are some of the most common errors:

1. The use of the alphabet method in the first stage of reading.
2. A lack of phonetic work.
3. Insufficient interpretation.
4. Too much aimless oral expression.
5. Indefinite, general assignments.
6. Not sufficiently differentiating reading from other school subjects.

Each of these will be studied briefly for the help that comes from the study.

The Use of the Alphabet Method.—It seems that at the present stage of educational advancement it should be needless to call attention to the fact that to begin to teach reading by having the children to learn the names of the letters of the alphabet by rote is exceedingly bad teaching and unpedagogical in the extreme. There

are, however, many teachers still teaching in this way, and many people who believe in it; also, many who do not even know there is a more natural, more interesting and better way. The objections to the alphabet method have been stated before, and though they should be rethought, they need not be repeated here.

Lack of Sufficient Phonetic Work.—Neglect of carrying forward a systematic line of work in analyzing oral words into their sounds, and of associating these sounds with their symbols is productive of the following bad results in teaching reading:

1. It leaves children helpless in the pronunciation of new words.

2. It leaves with children poor enunciation and bad habits of pronunciation.

3. It makes the language of children in speaking and reading inartistic, slovenly, and difficult to understand.

4. It makes the teaching of diacritical marks more difficult, and the use of the dictionary much less effective.

That this line of work is sadly neglected in the teaching of reading as commonly done in the schools of to-day is certainly true; and it is just as true that it is very much to be deplored.

Insufficient Interpretation.—It is ever to be remembered that the main thing reading as a school subject is to do for the learner is to give him *skill in interpretation.* Notwithstanding, it is often customary in teaching reading to go over a rather large amount of discourse by having the children go through with it by

pronouncing the words. This is called oral reading even when the learner does not get the thought himself, to say nothing of communicating it to some one else. This error gives the learner the wrong idea of the nature of reading as well as bad habits of reading.

The criterion of success in learning to read is not the large quantity of discourse gone through. That which constitutes the criterion of success in learning to read is the power of ready, accurate interpretation and the ability of adequate oral communication in the author's words. And these may come from dealing with comparatively few pieces of discourse rightly taught, while they certainly will not come from a large number of selections poorly taught.

Commonly teachers have no systematic plan of leading students into the interpretation of a selection. A few scattering questions are often asked and answered and this is deemed sufficient interpretation. The student usually or often gains no power from such work which he can take with him as a help in interpreting the next selection. Everyone can call to mind instances of such scattering, haphazard, half-hearted, aimless attempts at interpretation.

Interpretation must be searching, systematic, and thorough, if the learner is ever to attain skill to any high degree in it. Good interpretation is fundamental to good oral reading. Pupils can not communicate thought and feeling when they do not have it to communicate. A lack of thorough interpretation on the part of the learner before an attempt is made to read orally

is at the root the cause of most of the errors that occur in oral reading.

Aimless Oral Expression.—Frequently the main exercise in the recitation in reading as commonly taught is a sort of aimless oral expression. In this work the children often do not enunciate distinctly, do not pronounce correctly, do not show an understanding of what they are reading, and race through in a most agonizing way to one who has in mind any proper standard of what reading should be.

The exercise in oral reading should give the children the habit of *distinct enunciation,* correct pronunciation, and comprehensive oral expression. How often it sadly fails in all these as too frequently conducted.

Bad Assignments.—An indefinite, general assignment is as a rule a bad error in teaching any subject. But this truth applies with unusual force to teachers of reading as the work is usually done. It is quite usual for teachers to say in assigning a lesson, "Take the next lesson." With such an assignment students do not know how to take it, when to take it, nor where to take it, and are usually no better after taking than before taking.

Students taught in this way usually read *over* the lesson, which does not take more than ten or fifteen minutes usually, and think they have it prepared for recitation. This, of course, leads to the almost universal complaint by teachers that they can not get their students sufficiently to study their lessons. The main cause of this trouble, it is seen, lies with the teacher, and is to be found in the poor assignments given.

If the teacher will see to it that every assignment given in reading presents definite problems to be mastered, and conscientiously holds the children to the mastery of these problems, the difficulty in getting them to study their reading lessons sufficiently will disappear.

Undifferentiated Work in Reading.—Many teachers have not clearly in mind just how reading is like and different from other school subjects. Because of this, spelling, literature, history, geography, biography, science, etc., are mixed with the reading recitation. To bring in more history, geography, etc., than is necessary to the interpretation of the selection under consideration is not only unnecessary, but scattering teaching. A teacher may wear out a selection in this way without doing very good teaching.

Some unskillful teachers demand of their children a great deal of written work in connection with the reading lessons. This is usually done either to keep the children busy or to teach them to write. While some written work might possibly be justified in connection with the reading lesson, the vast amount required in some schools, is physically, morally, and intellectually degenerating to the child. It requires no skill on the part of the teacher to set children to copying their reading lessons. Any ignoramus can do so much.

In a similar way much committing to memory of selections is required of the children. This kind of work carried too far is not only unprofitable, but injurious to the child. The committing of some gems within the comprehension of the child is no doubt valuable.

But to demand such work of children just to keep them busy is very bad. There are three things to be kept in mind when asking children to commit to memory selections. First, it must be certain that the selection is worth committing; secondly, only a moderate amount of such work is of value. If too much is attempted, nothing will be well remembered; thirdly, this work must not be made a burden to the child.

CHAPTER VII.

NATURE AND ORIGIN OF NUMBER.

Nature of Number.—We shall assume for the present in our studies in method in number that number is a *spiritual,* or *mental,* thing, and try hereafter to be consistent with this assumption; also, to find out whether this assumption is correct. In making this assumption three views of what number is must be considered for the purpose of clearness. These views are as follows:

1. There is the view that number is an inherent property of objects.

2. There is the view that number is the mind's idea of the times one magnitude is applied in measuring another.

3. And lastly, there is the view that the symbol of the mind's idea of the times one magnitude is applied in measuring another is number. This view regards the figures the numbers.

The first view, that number is an inherent property of objects, is that number, like weight, color, size, or form belongs to an object by nature and has always belonged to it from the beginning of its existence. According to this view the child gets the number *one* from the observation of one object; the number *two* from the observation of two objects, etc. Number in this

sense is qualitative, for it is the qualities of the object which constitute its *oneness, twoness,* etc.

The second view of number, *the mind's idea of the times one quantity is applied to another in measuring it,* is that number grows out of measurement. According to this view *two* is the mind's idea that some quantity has been applied now, then again, to some other quantity in measuring it. Thus twenty feet means that the quantity one foot has been applied to a larger quantity twenty times in measuring it.

The third view is that the figure, the word, or the letters; that is, the symbol is the number. Thus, *twenty, XX,* or 20 is the number according to this view.

The Genesis of Number.—By genesis of number is meant the mental process by which number originated. There is a time in the life of each person when he has no number ideas. His mind goes through a certain process in originating his number ideas and this process is the *genesis of number.* It is conceivable that what is true of each person in his infancy in this respect was true of the race in its infancy. So the process of the mind of the race in originating number ideas is also to be seen as the *genesis of number.*

The steps in the genesis of number are as follows:

1. The mind grasps a magnitude as a vague whole.
2. The mind brings into consciousness a smaller magnitude of the same kind.
3. The mind applies the smaller magnitude to the larger in measuring.
4. The mind grasps the times the smaller magni-

tude was applied to the larger in measuring it; that is, the mind grasps the number.

Illustration.—If there were on a table before one a pile of sugar, cone shaped, eighteen inches high, the mind, first, because of its qualities could grasp it as a vague whole. The mind could see where the sugar and air, the sugar and the table meet, because the quality of the sugar is different from the quality of the table and the air. Not being satisfied with this vagueness, the mind proceeds to measure by bringing into consciousness a smaller quantity of the same kind, a pound. It then applies this to the larger quantity so many times, and gets an idea of the times to which, say, for example, is given the name forty. It then has the definite idea forty pounds.

Again suppose the number is 8 ft. The meaning is, a larger magnitude 8 ft. has been grasped as a vague whole; then the smaller magnitude 1 ft. has come into consciousness, and has been applied eight times in the measurement of the larger magnitude.

Or suppose the number is 5 boys. The meaning is the larger magnitude 5 boys as a whole has been grasped; then the smaller magnitude 1 boy has been grasped, and this magnitude has been applied five times times in the measurement of the larger magnitude.

"The idea of number is not impressed upon the mind by objects even when these are presented under the most favorable circumstances. Number is a product of the way in which the mind deals with objects in the operation of making a vague whole definite."

Definition of Number.—From the above study the

definition of number considered from the viewpoint of the psychology of number is obtained. This definition is as follows:

Number is the mind's idea of the times one magnitude is applied in measuring another.

This seems the most helpful view of number whether one looks at it from the standpoint of the genesis of number or from the standpoint of the way the mind uses its number ideas in the practical affairs of life. It is, to say the least, the best working definition of number for one in the study of the method of teaching number.

"Number is the product of the mere repetition of a unit of measurement."

Number is the abstract ratio of one quantity to another quantity of the same kind.—Newton.

"Number is the ratio of one quantity to another quantity taken as a unit."

Origin of Number Genesis.—In the study of the genesis of number the mind's natural mode of forming number ideas was seen. But the question here for study is, Why does the mind perform these activities? There is some necessity for the mind's performing the activities in the genesis of number or it would not do so. It is this necessity which is here to be discovered. The study of *limitation* gives some light upon the problem.

Limitation.—"If every human being could use at his pleasure all the land he wanted, it is probable that no one would ever measure land with mathematical exactness. There might be, of course—Crusoe like—a

crude estimate of the quantity required for a given purpose; but there would be no definite numerical valuation in acres, rods, yards, feet. There would be no need for such accuracy. If food could be had without trouble or care, and in sufficiency for every-body, we should never put our berries in quart measures, count off eggs and oranges by the dozen, and weigh out flour by the pound. If everything that ministers to human wants could be had by every-body just when wanted, we should never have to concern ourselves about quantity. If everything with which human activity is in any way concerned were unlimited, there would of course be no need to inquire respecting anything whatever: What are its limits? How much is there of it? Even if a thing were not actually unlimited, if there were always enough of it to be had with little or no expenditure of energy, it would be *practically unlimited,* and hence would never be measured.

It is because we have to put forth effort, because we have to take trouble to get things, that they are limited for us, and that it becomes worth while to determine their limits, to find out the *quantity* of anything with which human energy has to do.''

Limitation is the abstract idea that things do not exist in boundless quantities. It is fundamental to the mind's idea of magnitude. If there were no limitations upon things, magnitudes could not be measured, neither would there be any necessity for measurement. And if there was no necessity for measurement, there would be no need for number.

Means and End.—The origin of number may be

worked out also by considering the relation between means and end. "If all our aims were reached at the moment of forming them, without any delays, postponement, or countervening occurrences—if to realize an end we had only to conceive it—the necessity for measurement would not exist, and there would be no such thing as number in the strictly mathematical sense." But the end to be realized is often difficult and complex so that distance in space, remoteness in time, and various hindering circumstances must be overcome. In adjusting the proper means to the end quantity, or magnitude, must be measured, and from this the need of number arises.

"The conscious adjusting of means to end, particularly such an adjusting as requires comparison of different means to pick out the fittest, is the source of all quantitative ideas."

"Number arises in the process of the exact measurement of a given quantity with a view to instituting a balance, the need of this balance, or accurate adjustment of means to end, being some limitation."

Quantity, or Magnitude.—The term *quantity,* or *magnitude,* as used in these studies means anything that can be measured. It may be space, time, and force, giving such units as miles, years, and tons.

Conclusions.—From this study on the origin of number the following conclusions are reached:

1. There is a limitation upon all things man desires.

2. There is the necessity of adapting means to end in the affairs of man's life.

3. Out of these conditions there arises the necessity of measurement.

4. The necessity for accurate ideas of measurement is the origin of number.

NOTE.—The quotations in this chapter are from The Psychology of Number, by McLelland and Dewey.

CHAPTER VIII.

STEPS IN NUMBER.

Meaning of Steps.—It will be remembered that steps in any subject mean the mental activities which correspond to the various points of knowledge to be mastered in that subject; that steps are mental things, and that steps may be traced out in any subject as a whole or in any one lesson. Thus the steps in number are the mental activities employed in learning the various truths of number. For instance, the mentality corresponding to *three, nine,* and *one hundred* constitutes three steps.

Points to Be Kept in Mind.—In studying the steps in method in number there are some fundamental truths to be kept constantly in mind because of the guidance they furnish. Some of these truths are as follows:

1. Limitation transforms things into quantity, giving them a certain undefined magnitude, as size, weight, time.

2. Vague wholes of quantity are changed into definite wholes of quantity by the process of measurement.

3. The process of measurement takes place by means of units of quantity, the units being applied to the vague whole to be measured.

4. Number arises in the mind from this process of measurement.

5. Number is the mind's idea of the times one quantity is applied in measuring another.

Methods in Teaching Number.—The teacher who has been trying to keep up with educational progress for the last few decades has perhaps heard of the following so-called methods of teaching number:

1. The method of symbols.
2. The fixed unit method; also called the method of things.
3. The Grube method.
4. The Speer method.

All these methods are more or less widely used in various places even now and so are worthy of some study.

The Method of Symbols.—This method is based upon the incorrect view that the symbols are the numbers. It may be understood from the following description of its plan of procedure: The teacher places a number of objects before the children and teaches them to count, one, two, three, four, five, six, seven, eight, etc. Next the figures 1, 2, 3, 4, 5, 6, 7, 8, etc., are taught by counting. When these are learned, little formal problems of addition, such as 4+5, 2+3+4, 1+3+3, are taught; also, the rule for addition, more complex problems of addition, some writing numbers, and enumeration; little problems of formal subtraction, the rule for subtraction, and more complex problems of subtraction; and so with the formal processes of multiplication and division; and in a similar way on through number work.

This method "is illustrated in the old-fashioned

ways—not yet quite obsolete—of teaching addition, subtraction, etc., as something to be done with 'figures,' and giving elaborate rules which might guide the *doer* to certain results called 'answers.' It is little more than blind manipulation of number symbols.''

According to this method number is made ''the science of figures and the art of memorizing and the rules for manipulating them.''

''While *the method of symbols* is still far too widely used in practice, no educationist defends it; all condemn it. It is not then necessary to dwell upon it longer than to point out in the light of the previous discussion why it should be condemned. It treats number as an independent entity—as something apart from the mental activity which produces it; the natural genesis and use of number are ignored, and, as a result, the method is mechanical and artificial.''

Objections to the Method of Symbols.—The following are pointed objections to this method: 1. It teaches form before meaning; the symbol before the thing symbolized. 2. It is entirely abstract. 3. It gives the learner a fundamentally wrong idea of number. 4. It subordinates meaning to form.

Naturally the mind learns meaning, then the symbol of the meaning. This is always the order of development. Thus the idea, then the word; the thought, then the sentence; the number, then the figure, the symbol, is nature's order. The method of symbols is unnatural in that it reverses this order.

Number originated in connection with objects, in the process of measuring them. The method of symbols

ignores this truth and is unnatural by its abstractness.

By the method of symbols the learner gets the idea that the figures are the numbers, if he gets any definite idea of number at all. Many a child has studied this way for years without ever having had the right idea of number.

The constant manipulation of symbols leads the learner into the habit of thinking of symbols as all important in number work. This dwarfs his power to grow in reasoning. He learns how to manipulate the figures, but he does not learn how to think for himself.

The Fixed Unit Method.—This method, also called *the method of things,* is founded upon the incorrect idea that number is an inherent property of objects.

"*The method of things*—of observing objects and taking vague percepts for definite numerical concepts—treats number as if it were an inherent property of things in themselves simply waiting for the mind to grasp it, to 'abstract' it from the things. But we have seen that number is in reality a *mode of measuring value,* and that it does not belong to things in themselves, but arises in the economical adaptation of things to some use or purpose."

If the teacher places before the children objects and teaches them to call the first, *one;* the next, *two;* the next, *three,* etc., then gives little problems based upon such work, she is employing the fixed unit method. All work which deals concretely with objects in teaching number but fails to impress the children with the idea that number grows out of measurement is by the

fixed unit method. Such little problems as the following, succeeding the ideas got as above indicated are according to the fixed unit method. 1. Put two cubes in one place on the table and three in another place; put them together and tell the story. 2. Put four counters in a pile; take away three and tell the story. 3. Two counters and two counters and one counter are how many counters?

Objections.—The following will appear as objections to the fixed unit method: 1. It ignores the mind's natural activity in the genesis of number. 2. It gives the learner a wrong notion of what number is. 3. It usually is scattering and lacks definiteness and organization.

In the genesis of number the mind uses one quantity in measuring another. The quantity thus chosen is the unit of measurement and may be almost anything. It is a unit, but variable; not fixed. It may be a foot, a boy, a dozen eggs, a book, a second, a century, etc. This notion of the measuring unit as relative is entirely ignored by the fixed unit method.

The fixed unit method gives the learner the notion that number is an inherent property of things, something to be abstracted from them, such as weight or form. Such an erroneous idea of number is a constant hindrance to the learner through his entire work.

Much of the work done throughout the country by the fixed unit method has been so fragmentary, haphazard, and purposeless that this in itself should condemn it.

The fixed unit method with its defects is however

superior to the method of symbols in that it is concrete. That is to say, the work is done in connection with objects.

The Grube Method.—"The Grube Method is a method of teaching Primary Arithmetic, extensively use in Germany. The principle of this method is, that it makes each individual *number,* instead of the *operations,* the basis of instruction; and combines in each lesson, from the start, the four fundamental operations. Thus, in treating the number 2, 'all the operations possible within the limit of this number' are performed in the same lesson. Thus the child is taught that $1+1=2$, $2\times1=2$, $2-1=1$, $2\div1=2$, $2\div2=1$, etc. In teaching the number 4, the lesson is $1+1+1+1=4$, $4-1=3$, $4\times1=4$, $4\div1=4$; $2+2=4$, $2\times2=4$, $4-2=2$, $4\div2=2$, $3+1=4$, $4-3=1$, $3\times1+1=4$, $4\div3=1$, and 1 remaining, etc. The whole circle of operations is exhibited and taught in treating each individual number."

The above sets forth pretty clearly the essential idea in the Grube Method. This idea is that *each number is to be exhausted before the learner is even led to suspect that there are higher numbers,* to say nothing of his learning something of their uses. Thus, if the number 6 is being taught, everything possible to be done with 6 is done before 7 is introduced.

The Grube Method is concrete; that is, it is done in connection with objects. The children are led to handle cubes, spheres, counters, grains of corn, etc., in discovering the relations in the numbers.

The Grube Method is very systematic and definite. In America it has been customary to deal with the

numbers from 1 to 10, inclusive, as indicated above, the first year; with the numbers from 11 to 20, inclusive, the second year; with the numbers from 21 to 100, inclusive, the third year, and as much as possible of the rest of number during the remainder of the child's school life. Such a plan was so definite and systematic that the teacher knew exactly what to do at all times.

The Grube Method does not deal with the unit as variable, but as fixed. It does not show number as arising out of the process of measurement.

"We thus see the fundamental fallacy of the Grube Method in another light. Just as, upon the whole, it proceeds from the mere observation of objects instead of from the constructive *use* of them, so it works with fixed units instead of with a whole quantity which is measured by the application of a unit of measurement. The superiority of the Grube Method to some of the other methods, both in the way of introducing objects instead of dealing with numerical symbols, and in the way of systematic and definite instead of haphazard and vague work, has tended to blind educators to its fundamentally bad character, psychologically speaking."

"According to the Grube Method unity is one *thing* and that is the end of it."

"Avoid the interest-killing monotony of the Grube grind on the three hundred and odd combinations of half a dozen numbers, which thus substitutes sheer mechanical action for the spontaneous activity that simultaneously develops numerical ideas and the power to retain them."

Objections to the Grube Method.—The following are pointed objections to this method:

1. It works with fixed units instead of with a whole quantity to be measured.
2. It is monotonous and so, uninteresting.
3. It dwarfs the learner's power to learn numbers.
4. It is unnatural.

Any method which fails to lead the learner to see that number grows out of measurement is a fixed unit method. And such a method never fails to give the learner erroneous ideas of the nature of number.

Dwelling upon one number so long is monotonous and tiresome. The mind likes change and can be interested continuously only in that which manifests change.

To do all with any number possible before working with a higher number is dwarfing to the mathematical ability of the learner. It restrains the mind unduly to work in a stage of development not strong enough to call forth its full power. Work of such a kind always results in stunted growth and loss of possibility.

The demands of life before the learner comes to school and also after he leaves school are not that he will need to know all there is to be known of one number before learning anything of a higher number. On the other hand he will need to know much of many numbers before he needs to exhaust any one. Thus to exhaust one number before taking up a higher is unnatural.

The Speer Method.—"The Speer Method in number is one that considers number as a ratio, and not as 'how many' in the usual meaning of that term. In the de-

velopment of the Speer Method there are three stages: (1) The discovery of qualitative relations of magnitude, i. e., that one magnitude is longer or shorter, larger or smaller, heavier or lighter, etc., than another. (2) The discovery of the quantitative relations of magnitude as expressed by their ratioes, i. e., how many times one magnitude is longer or shorter, larger or smaller, heavier or lighter, etc., than another. (3) The determination of the plan of procedure in the solution of problems from the ratios of the magnitude involved."

The Speer Method considers number a ratio; that is, the idea of the relation between two magnitudes.

In teaching in the first stage of the Speer method sense training is aimed at largely; that is, skill in seeing the qualities of things. This is done that the learner may readily grasp quantities as vague wholes; for quantities as wholes can be grasped only by discrimination of qualities.

The following illustrates work in this stage:

"Pin or paste squares of standard red and orange where they can be seen. Pin the red above the orange.

1. Find things in the room of the same color as the red square. What things can you recall that are red?

2. Look at the orange square. Find the same color elsewhere in the room. Recall objects that have this color.

3. Close your eyes, and picture, or image the red square. Now the orange square.

4. Which square is above? Which below? Name the two colors.

5. To-morrow bring something that is red and something that is orange. Also tell the names of orange or red objects that you see in going to and from school.

Pin or paste a square of yellow below the orange.

1. Look at the yellow. Find the same color in the room. Recall objects having this color.

2. Look at the red, then the orange, then the yellow. Close the eyes and picture the colors one after another in the same order.

Cover the squares.

3. Which is at the top? At the bottom? In the middle?

4. Name the three, beginning at the top. Name from the bottom.

5. Which color is third from the top? Second from the top? Third from the bottom?

6. To-morrow bring something that is yellow and tell me the names of things that you have seen that are yellow.

Add a square of green.

1. Find green. Recall objects that are green.

2. Try to see the green square with the eyes closed.

3. Look at the four colors.

4. Think of the four, one after another, with the eyes closed."

In teaching in the second stage of the Speer Method the work is held closely to the idea that all number work must deal with the comparison of magnitudes. Thus the comparison of magnitudes is made the organizing idea of the work in this stage. The nature of the elementary parts of the work in this stage may be seen from the following:

"1. Cut a rectangle into two equal parts. After cutting, place the two parts together to see if they are equal. Practice cutting and comparing the two parts.

2. Cut rectangles into three equal parts. Compare the parts. Are they equal? Practice.

Drawing.—1. Draw a line. Place a point in the middle of the line. Measure to see if the parts are equal.

Try again. Measure. Is one of the parts longer than the other? Are they equal? What is meant by equal? Show me one of the two equal parts. Show me the other.

2. Draw a line. Separate it into four equal parts. Measure. Are the parts equal? Show me one of the four equal parts. Show me three of the four equal parts. Show me the four equal parts.

3. Draw a line. Separate it into three equal parts. Measure. Are the parts equal?

4. Show me where the line should be drawn to separate the blackboard into two equal parts. Point to the equal parts of the board.

5. Can you see the two equal parts of the floor? Of the top of your desk? Show me two equal parts of other things in the room."

"**Relations of Quart and Pint.**—Show pupils the pint and quart measure. Have them find the number of pints to a quart by measuring.

1. After measuring, tell all you can about the quart and the pint.

2. What is sold by the pint and by the quart?

3. A quart is how many times as large as a pint?

4. What part of a quart is as large, or as much, as a pint?

5. A quart is how much more than a pint?

6. A pint is how much less than a quart?

7. A quart and a pint equal how many pints?

8. Show me 1½ quarts. What have you shown me?

9. 1½ quarts equal how many pints?

10. If we call a pint one, what ought we to call a quart? Why?

11. If we call a quart 2, what ought we to call the sum of a quart and a pint?

12. If a quart is 1, what is a pint?"

In the third stage of the Speer Method practical problems of all kinds are taught, it being presumed that

the children have obtained correct ideas of number in the two preceding stages. It is also presumed that from the work in the first two stages a substantial and adequate foundation is laid for the third stage.

A Practical Method.—From the various methods in use in teaching number the teacher must select a line of procedure possessed of the three following characteristics:

1. The method must be usable by the teacher of *average intelligence and average professional preparation.*

2. It must be *systematic—well organized and definite.*

3. It must to a large extent be in harmony with *the mind's natural mode of action* in the development of number ideas and number processes.

The Speer method is hardly in harmony with the first and second of these points; the Grube method violates the third; the Fixed unit method violates the third; and the method of Symbols violates both the second and third.

With these three thoughts for guidance a further study of the method of procedure in teaching number should prove profitable.

The following quotations will give some idea of the correct way to begin number teaching:

"The first lessons in arithmetic should be based on the practice of measuring in its varied application."—W. T. Harris.

"Number grows out of the idea of measurement. This should never be forgotten. It is the abstract char-

acter of so much of the number work that makes it uninteresting and unprofitable.''

The Two Stages of Number Work.—For the purpose of studying its method number work may be divided into two stages. In a very general way the first stage consists of about the first three years of work in number which the child is accustomed to do in school. This is appropriately called the *primary stage* of number work. The second stage embraces the remainder of the learner's work in arithmetic in school, and is appropriately called the *advanced stage* of number work.

Characteristic of the Primary Stage.—The following points characterize the number work in this stage:

1. The work is much more elementary, or simple, than that in the advanced stage.

2. The work in this stage is to be done best without placing any text-books in the hands of the pupils.

3. The work in this stage is much narrower in scope than that in the advanced stage.

4. The work in the first stage is much more concrete than that in the advanced stage; that is, the work is done more by means of objects.

Scope of the Work in the Primary Stage.—It has been customary in most parts of the country to confine the number work in school for the first three years mainly to the numbers from one to one hundred, inclusive. Evidence of this general scope of the work in the primary stage of number teaching is found in the State courses of study. The State courses of study for Indiana and Illinois indicate in a general way what is done in this stage of the work. A study of these shows that

the first year's work in number is spent mainly on the number from 1 to 10, inclusive; that the second year's work is spent mainly on the numbers from 11 to 20 inclusive; and that the third year's work is spent mainly on the numbers from 21 to 100, inclusive. And since these State Courses of Study are prepared by representative educators of these states, they indicate the uniformity of educational opinion more or less approximately.

The object in making the dividing line between the first year's work and the second year's work at the number 10, and between the second year's work and the third year's work at the number 20, and between the third year's work and the fourth year's work at 100 is arbitrary, no doubt. There is certainly no very good reason for not going further in the first year, or further in the second year, or further in the third year, if the ability of the students, length of the school year, and progress of the students demand it. To make these divisions ironclad is unwarranted either in reason or experience. Much just criticism has been given to such a division of the number work.

However arbitrary this division of the number work is, it has, nevertheless, served a useful purpose. And this purpose is that it has systematized and made definite the work of these years. This has been useful to both teachers and students. It has prevented aimless, fragmentary, disconnected work. Indeed the thought which gave rise to this division of the number work was that work might thus be made systematic, definite, and clear.

If the work on the numbers from 1 to 100, inclusive,

is to be emphasized in the primary stage, the next question is, What is to be done with any individual number, for instance 9? Or what, for instance, is to be done with the number 4 in this stage of the work? In order to answer this question it is necessary to study what can be known of a number, and to this we turn.

What Can Be Known of a Number.—A careful study will show that the following may be known of a number:

1^1. *The number as a whole.*

2^1. *The relations in the number.* These are as follows:

1^2. *Integral,* as follows:

1^3. *Any two unequal numbers that make the number,* as in the following problems:

If a boy has five marbles and finds four more, how many has he?

If a book costs four dollars and a trunk five dollars, what do both cost?

2^3. *Any two equal numbers that make the number,* as in the following problem:

John earns three dollars in a day, and James earns the same; what do both earn?

3^3. *Any two unequal numbers into which the number may be separated,* as in the following problems:

John had six pennies and spent two; how many had he left?

A man spent six of his ten dollars for provisions; how many had he left?

4^3. *Any two equal numbers into which the number may be separated,* as in the following problem:

A farmer has eight horses and sells four; how many has he left?

5^3. *The number of equal numbers that make the number,* as in the following problems:

A man gives two marbles to each of four boys; how many marbles does he give?

A boy leaves two pints of milk at each of five houses; how many pints does he leave?

6^3. *The number of equal numbers that are in the number,* as in the following problems:

A man has eight pints of milk; how many quarts has he?

A teacher wishes to give ten problems to his boys, two to each boy; to how many boys can he give?

7^3. *The equal parts of a number,* as in the following problems:

A man divides eight oranges equally among four boys; how many does he give to each?

A stationer distributes nine tablets equally among three girls; how many does each receive?

2^2. *Fractional,* as follows:

1^3. *The equal parts of a number,* as in the following problems:

A boy had eight marbles and lost four; what part did he lose?

A boy had eight apples and gave six of them away; What part did he give away? What part did he have left?

3^1. *The applications of the number.*

1^2. *Denominate;* as, four pecks in a bushel, or four gills in a pint.

2^2. *General;* as, when teaching the number 4, little problems involving four books, four boys, four birds, etc., are solved.

4^1. *The notation of the number.*

The notation of number is the systematic representation of number by means of symbols. The symbol of the number may be (1) the word or words, as eight; (2) the figure, as 8; (3) the Roman Letters, as VIII. That is to say, the notation of number is of three kinds, *words, figures* or *letters.*

Summary: This may be summed up by saying the following may be known of a number:

1^1. The number as a whole.

2^1. The relations in it.

1^2. Integral.

2^2. Fractional.

3^1. Its applications.

1^2. Denominate.

2^2. General.

4^1. Its notation.

1^2. Word.

2^2. Arabic.

3^2. Roman.

What Is to Be Done with a Number.—From the foregoing study it is seen that a number, for instance 4, is to be taught (1) as a whole; (2) as to the relations in it, both integral and fractional; (3) as to its applications, both denominate and general, and (4) as to its notation. This work is to be done with each number, and the numbers to be emphasized the first year are those from 1 to 10, inclusive; those to be emphasized the

second year are the numbers from 11 to 20, inclusive; and those to be emphasized the third year, the numbers from 21 to 100, inclusive. Each of these points will repay further study.

The Number as a Whole.—When does the learner know a number as a whole and how best proceed in teaching it? The answer to the first part of this question is, the learner knows a number as a whole when he knows it as made up of so many *ones,* or again, he knows it as a whole when he knows it as made up of *the next number below it* and *one.* Thus the learner knows the number 4 as a whole when he knows it as made up of four *ones,* or when he knows it as made up of *three* and *one.* And in answer to the second part of the question, one term in the above needs to be studied, and this is the term, *one.*

The Meaning of One.—One in number is not a fixed quantity, it is relative. It arises from the application of some measuring unit once to some unmeasured whole. Thus one may be anything—one inch, one mile, one week, one century, one ounce, one ton, one tree, one boy, one book, one flower—employed as a unit of measure.

The perennial dispute as to whether one is a number or not seems absurd when the right idea of number is held. One is a number in just as true a sense as ten.

This idea of what *one* is furnishes guidance in teaching a number as a whole; that is, it indicates that the teaching must be done so as to lead the child to see that the ones are so many applications of the measuring unit. This may be done as follows:

If the number to be taught is four, draw a line on

the board four feet long; give the child a foot measure and have him measure off three feet, then one more foot, and ask him how long the line is. If he does not know the name of the new number it is good teaching to give it to him. Or give the child a pint cup and have him measure three pints of water and put them in a bucket, then one more pint, and ask how many pints of water are in the bucket. Then ask him to show fours of things in the room, or on the table, or tell fours of things he has seen at home or on the road to school. Repeat this kind of work until the learner has the idea of four as a whole well in mind.

The work with any of the other numbers as a whole is of a similar kind.

The Relations in the Number.—From the study of the nature of number, and from the study of the meaning of *one,* knowledge valuable for guidance in teaching the relations in a number is obtained. These studies indicate that the relations should be taught in such a way as to lead the learner to see that number is always the result of measurement. The measuring idea must always be made prominent.

In order to make clear the meaning of the *integral relations* in a number, the relations in the number 4 may be arranged, as follows:

1. Three and one.
2. One and three.
3. Four minus one.
4. Four minus three.
5. Two and two.
6. Four minus two.

7. Four divided by two.
8. Two twos.
9. Four minus four.
10. Four divided by one.
11. Four divided by four.
12. Four ones.

It readily appears that these relations may readily be divided into synthetic and analytic groups.

The synthetic are:

1. Three and one.
2. One and three.
3. Two and two.
4. Two twos.
5. Four ones.

The analytic are:

1. Four minus one.
2. Four minus three.
3. Four minues two.
4. Four minus four.
5. Four divided by two.
6. Four divided by one.
7. Four divided by four.

It is also evident that *addition, subtraction, multiplication,* and *division* are all employed in working out the relations in any number. Since these processes are to be taught, the question, What shall be the order of teaching them? arises. The following quotation states the truth on this question: "The psychological order as determined by the demand on conscious attention is the old-time arrangement—Addition and Subtraction, Multiplication and Division.

It is the order in which numerical ideas and processes appear in the evolution of number as the instrument of measurement; the order in which they appear in the reflective consciousness of the child; the order of increasing growth in psychological complexity.''

From the foregoing study it is seen that in teaching the relations in a number, the teacher holds in mind a given relation, and so manipulates the objects or has the children so manipulate them as to lead them to grasp the relation and state it. In this work the idea of measurement is made prominent, and the order of the process is, first, addition and subtraction; secondly, multiplication and division.

Help will probably come to some one from arranging the fractional relations of some number, as of the number 4. They are as follows:

1. Three fourth of four and one fourth of four.
2. One fourth of four and three fourths of four.
3. Four minus three fourths of four.
4. Four minus one fourth of four.
5. Two fourths of four and two fourths of four.
6. Four minus two fourths of four.
7. Four divided by two fourths of four.
8. Two two fourths of four.
9. Four minus four fourths of four.
10. Four divided by one fourth of four.
11. Four divided by four fourths of four.
12. Four one fourths of four.

The Applications of a Number.—There are two kinds of applications of a number to be studied, as follows:

1. The applications of a number *in the tables;* that is, the *denominate* applications.

2. The general applications of a number; that is, in the little practical problems of life.

Under the denominate applications the children are to be taught concretely in connection with any number all the units of the tables, which consist of that number; as,

Four inches are one hand.
Four gills are one pint.
Four pecks are one bushel.

The denominate applications of numbers from 1 to 10 are:

1.

One cent.

2.

Two one-cents are two cents.
Two pints are one quart.
Two reams are one bundle.
A sheet folded into two leaves is a folio.

3.

Three feet are one yard.
Three feet are one pace.
Three miles are one league.
Three one-cents are three cents.

4.

Four quarters are one yard.
Four quarters are one dollar.
Four inches are one hand.
Four gills are one pint.
Four pecks are one bushel.

Four quarts are one gallon.
Four weeks are one month.
Four farthings are one penny.
A sheet folded into four leaves is a quarto.

5.

Five one-cents are five cents.

6.

Six feet are one fathom.

7.

Seven days are one week.

8.

Eight quarts are one peck.
Eight cord feet are one cord.
A sheet folded into eight leaves is an octavo.

9.

Nine square feet are one square yard.

10.

Ten cents are one dime.
Ten dimes are one dollar.
Ten dollars are one eagle.

Under general applications of a number, the pupils are required to solve, and to form and solve miscellaneous problems; as,

If a boy buys three apples at one store and one at another, how many does he buy?

If a man has eight oranges, to how many boys can he give two each?

Notation of the Number.—Notation is the science and art of representing number by symbols. The symbols used are *words, letters,* and *figures.* Thus the number 4 may be symbolized by (1) four; (2) by IV; and

(3) by 4. The first kind of notation is called *word notation;* the second is called *Roman notation;* and the third, the *Arabic notation.*

At some time during the first three years the notation of numbers from 1 to 100 is taught.

CHAPTER IX.

STEPS IN NUMBER — CONTINUED.

The Primary Stage.—In a general way it may be said that in the primary stage of number work, the numbers from 1 to 100, inclusive, are to be taught, each (1) as a whole; (2) as to the integral and fractional relations in it; (3) as to its general and denominate applications; and (4) as to its notation. This however must be understood to mean that most of the work falls within this scope, but that it is not of necessity limited to this scope.

Time of Beginning.—It is generally conceded best not to start the child on the number work proper at the beginning of the first year, and that the number work for the first month or two should be incidental. The following is what one fine thinker says on this point:

"The work during a period of about three months *in so far as number is concerned is incidental.*

The main idea is to train the mind by a consideration of *form,* as sphere, cube, cylinder, prism, square, triangle, points, etc.

In doing this work number is, of necessity, incidentally introduced and learned."

The work in this period of the first stage of number work is the same as was explained in the first stage of the Speer method and is founded upon the same thought.

This thought is that the learner most needs at this stage of his development to attain skill in detecting *qualities* of things. That is to say, he needs sense training. In connection with this number is incidentally learned.

In pursuance of this thought lessons are given on colors, fruits, plants, animals, form, magnitudes—the cube, the cylinder, the square, the oblong, the triangle, the circle, the line, the cone, the prism, etc., the teacher constantly emphasizing sense training and the comparison of magnitudes.

The Number as a Whole.—It will be recalled that the learner knows a number as a whole when he knows it as made up of so many ones, or as made up of the first number below it and one. Thus when the learner has been led to see this he has been taught the number as a whole.

Illustration.—If the child is to be taught the number 7 as a whole, it is assumed that he knows the number 6. Then we may give him a number of cubes and have him to put six in one place and one in another place; then put them all together, and tell the story. If he does not know the name of the new number it is to be given to him. Next he may put six counters in one place and one in another place, then put them all together and tell the story. The story is *six counters and one counter are seven counters.*

The *story* is a term which the child is to be taught to understand from the first, just as a matter of convenience in teaching. The child will learn it at first by imitation, but will soon understand it and use it rationally.

Further Illustration.—More in accord with the idea that number results from measurement is the following: Draw a line on the board. Give the child a foot rule and tell him to measure off six feet, then another foot. Ask him how many feet he measured off. Have him tell the story. It is, *six feet and one foot are seven feet.* Or have the child cut a paper slip six inches long, then another one inch longer. Ask him how long the second one is.

The Relations in a Number.—In teaching the relations in a number the integral relations should be taught first and then those involving fractions. These must be taught concretely; that is, by means of objects, at first. There are, though, really three stages in teaching each relation. And these stages are as follows:

1. The teaching of the relation in the presence of the objects. This is called the *sense-perception stage.*

2. The teaching of the relation in connection with objects, though the objects are not present. This is called the *imagination stage.*

3. The teaching of the relation without objects; that is, abstractly. This is called the *abstract stage.*

Illustration.—Suppose the relation is 4 and 3 are 7. The teacher has the children to measure off four inches of a line, then three more, and tell the story; or she has them to put four counters in one place and three in another, then all together and tell the story. This is concrete teaching in the *sense-perception stage.* The sensuous material is handled by the children as a means in leading them to see the relations in the number.

After having taught the relation, 4 and 3 are 7, in

this way, the teacher might give the following: Three birds are sitting on the fence and four in a tree, if those on the fence should fly into the tree, how many would there be in the tree? Or, a farmer has four bushels of corn in a box and three bushels in a barrel; how many bushels has he in both the box and the barrel? In these cases the objects are not present, but the child pictures them in his imagination. This is teaching the relation in the *imagination stage.*

But suppose the teacher says to the children 4 and 3 are how many? or, 3 and 4 are how many? the work is purely abstract, and such teaching is in the *abstract stage.*

Importance of Each.—The work is important in each of these three stages of teaching the relations in primary number, and should be intelligently and systematically done.

The first is important because it is impressive, it appeals to the learner's senses, it is interesting, and lays a sure foundation for the other two kinds of teaching.

But the child must learn to think when not in the presence of the objects about which he is thinking. If one were able to think only in the presence of objects he would be a slave to his environment; he would belong more to the world of things around him than to himself. So the child needs the work in the imaginative stage that he may learn to picture the conditions of problems to be solved in life. And this he needs to learn to do well.

The learner needs work in the abstract stage in order to become skillful in thinking number relations.

When 4 and 3 are presented to the mind it is desirable that 7 come into consciousness as nearly instantly as possible. And a similar thing is desirable concerning other numbers. In order that the learner may become skillful in seizing the relations in numbers thus, he must have much of this abstract work.

Thoroughness of Work.—In working with any number, as with 6, it is not only not necessary to exhaust the number before taking up the relations in the next number, but not even desirable. To exhaust one number before beginning with the next is to deal with the numbers in the number series as isolated to too great an extent. Such teaching does not sufficiently emphasize the relations between the numbers. It further is unnatural and keeps the learner upon one thing until it becomes monotonous and uninteresting to him.

But the work *must be thorough.* In dealing with the most important relations in numbers from 1 to 100, *the work must be varied sufficiently to maintain interest, but must be repeated often enough for the child so thoroughly to fix them in mind that they will come into consciousness at once when needed.* Nothing is more annoying than for the learner to have to stop and count his fingers, or dots, or some other objects in order to know, for instance, how many 8 and 9 are.

Fractional Relations.—The work in teaching the fractional relations should keep pace approximately with the work in teaching the integral relations. That is to say, if, for instance, the integral relations in the number 4 are being taught, before leaving the number

the fractional relations are to be presented through the three stages— the sense-perception stage, the imagination stage, and the abstract stage—as in teaching the integral relations.

Illustration.—In starting this work an apple or some such object may be separated by a pupil or the teacher into two equal parts, the children being led to see that the parts are equal. Then they are given the name for the parts, if they do not already know it. After they learn the name, one-half, the children are led to see the following:

One-half and one-half are one.
One less one-half is one-half.
Two one-halves are one.
In one there are two one-halves.
One-half of one is one-half.

In teaching the fractional relations of the number 3 there are two stages:

1. The teaching the idea, *one-third.*
2. The teaching the *thirds of three.*

The idea, *one-third,* is to be taught as follows: Give a child a paper three inches long and tell him to cut it into three equal parts. Then teach him that each part is called *one-third;* then as follows:

One-third and two-thirds are one.
Two-thirds and one-third are one.
One less two-thirds is one-third.
One less one-third is two-thirds.
Three one-thirds are one.
In one there are three one-thirds.

One-third of one is one-third.

Two-thirds of one is two-thirds.

In teaching the thirds of three the procedure is as follows:

Give the learner three cubes and ask him to show you one-third of them. Then have him tell the story. It is, *one-third of three cubes is one cube.* Then he is to be led to see:

One-third of three is one one.

Two-thirds of three is two ones.

Three-thirds of three is three ones.

One is one-third of three.

Two are two-thirds of three.

Three are three-thirds of three.

The procedure in teaching the fractional relations of other numbers is similar to that in teaching these relations of 3; that is, the stages, and the steps are in general the same.

Important and Unimportant Relations.—There are numbers of which the relations, both integral and fractional, are of much less practical importance than those of some other numbers. Thus 13, 17, 19, 23, 29, 31, 37, 41, 43, and 47 are some of these numbers, while 10, 12, 14, 15, 16, 18, 20, 21, 24, and 36 are among the more important.

In teaching these less important numbers it would not be necessary nor desirable to teach *all the possible relations* in them. It would not be desirable, for instance, to spend much time on $^1/_2$, $^1/_3$, $^1/_4$, $^1/_5$, $^1/_6$, $^1/_7$, $^1/_8$, $^1/_9$, $^1/_{10}$, $^1/_{11}$, and $^1/_{12}$ of 13, but the thirteenths

of 13 should be taught. Likewise in teaching 16, it would not be desirable to teach the thirds, fifths, sixths, sevenths, ninths, tenths, elevenths, twelfths, thirteenths, fourteenths and fifteenths of 16, but it would be desirable to teach the halves, the fourths, the eighths and sixteenths of 16.

The Measuring Idea.—By way of emphasis justification is claimed in repeating that every reasonable effort should be made to keep before the learner's mind the idea that number is the result of measurement. So in teaching the relations in numbers this idea should emphatically pervade the whole work.

The Denominate Applications.—Denominate applications are the applications of numbers as used in the tables, as 8 quarts are one peck, or 4 gills are one pint. These are to be taught concretely in connection with the various numbers in the number series.

Illustration.—Thus in teaching the number 2, one denominate application to be taught is, *two pints are one quart.* In preparing to teach this concretely the teacher secures a quart measure, a pint measure, and something to measure. She has a child to take the pint measure and fill the quart measure, noting how many pints it requires. Then the quart measure is filled and emptied into the pint measure, the child noting how many times it fills the pint. In each case the story is asked for. In the first case the story is, *two pints of water are one quart.* In the second case the story is, *in one quart of water there are two pints.* This is on the assumption that water is measured.

The other denominate applications of two and of the other numbers are to be taught in a similar way, when at all possible. All are to be made concrete.

Further Illustration.—In preparing to teach the denominate application, 4 pecks are one bushel, the teacher secures a peck measure, a bushel measure, and something to measure, as oats. She then has the learner to measure with the peck and fill the bushel, and tell the story. It is, *four pecks of oats are one bushel.* The bushel measure is filled and as many pecks taken from it as can be, then the story told. It is, *in one bushel of oats there are four pecks.*

The General Applications.—General applications are simply those in the solution of problems found in life. *There is no more important part of number work than these problems in general applications.* A teacher's success in teaching number will depend very largely upon her ability to give her pupils *many* good problems —problems not too hard and not too easy; problems that are well graded, those that will constantly lead the learner to a little stronger thinking.

In connection with every number many of these little problems should be solved by the students. In this work there is rare opportunity for the teacher to show her skill in leading the pupils to think for themselves. And the learner's growth in applying number to the solution of the problems arising in practical life depends almost wholly upon *how well* the teacher does this work in *general applications.*

It is often a very heavy task upon teachers to ar-

range these problems originally for their pupils. This task may be made much lighter on teachers by their securing some good teacher's manuals on number, or primary arithmetic. These contain large numbers of problems from which teachers may draw.

A list of such books is given at the end of this chapter.

Illustrations.—Suppose the number under consideration is 21. The following are some problems suitable to children in the average class in this stage of the work:

1. Some birds were in a tree; 7, which was $^1/_3$ of them, flew away. How many were there at first?

2. A man sold 14 sheep, which were $^2/_3$ of what he had at first. How many had he at first?

3. A gardener takes 21 bushels of apples to market, and sells $^1/_7$ of them. How many does he sell? How many has he left?

4. A man gave 3 children 7 apples each; how many did he give to all?

5. A little girl has 21 picture cards to give to her playmates. To how many can she give them, if she gives 3 to each?

6. $^4/_7$ of 21 are how many?

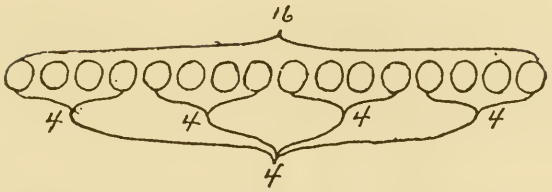
7. $^2/_3$ of 21 are how many?

8. $^1/_3$ and $^2/_7$ of 21 are how many?

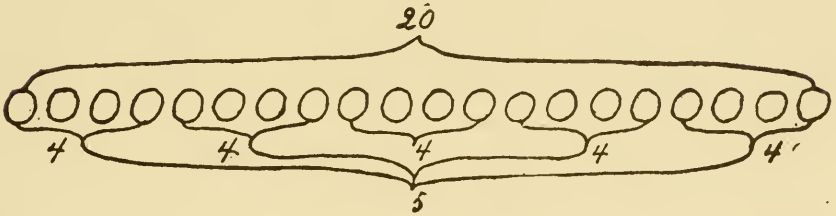
Picturing Problems.—This is work to be done by the children at their seats or at the board.

The following will illustrate:

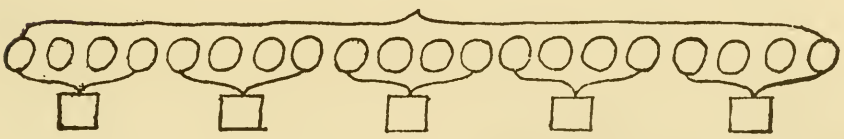
1. How many 4 spheres in 16 spheres?



2. I have 20 cents to spend for picture cards; if I pay 4 cents a piece, how many can I buy?



or



This is valuable to children in helping them to see the relations in their problems in the earlier stages of their work. It should not be too long continued though. The learner should reach a place as soon as possible where he can solve the little problems without pictures. To carry this work too far would not foster rapidity of thought. As a device, though, properly used it is very helpful to children, and it lightens the work of the teacher.

Notation.—Notation is the science and art of representing numbers by means of symbols. There are three

kinds: (1) the word notation; (2) the Roman notation; and (3) the Arabic notation. These are all in use to some extent, but the Arabic is used almost exclusively in teaching number and arithmetic.

There is a question concerning the best time to teach notation worthy of some study. Some say that notation should be taught as soon as the learner has number ideas. And by this it is meant that figures are to be taught as soon as number work begins. Others would not teach notation before the beginning of the second year of the child's work in number. One good authority says: "The fundamental defect in dealing with arithmetic is that *expression* is treated instead of *number*.

This manifests itself in various ways:

1. *In the failure to teach the ideas and oral terms of numbers for a considerable time before beginning the work on written symbols.* In reading, the child has been dealing with ideas and oral terms for six or more years before he begins work upon the written word."

This author, a most excellent thinker, would not have the figures taught before the beginning of the second year of number work.

The main objection against teaching the Roman, and Arabic notation during the first year is as follows:

It tends strongly toward giving the learner the wrong idea of number—the idea that the figures are the numbers.

The point in favor of teaching the Roman, and Arabic notation the first year is as follows:

It is convenient in teaching to have the child know the figures the first year, and since he must know them some time, it seems just as well to teach them as soon as he gets the number ideas.

It is a great misfortune to the learner for him to get the notion that the figures are the numbers, and all reasonable precaution should be taken to prevent such an error. So it is probably better to postpone teaching notation at any rate till the learner is well founded in correct number ideas, or during most of the first year of number work.

Two Stages.—There are two stages in teaching notation to children: The first consists of teaching the notation of the numbers from 1 to 9, inclusive. The second consists of teaching the notation of the numbers from 10 on, as far as desirable.

The First Stage.—The first stage is very simple and offers very little difficulty in teaching. The following is a good way to proceed:

Draw a line on the board. Have the child measure off six inches. Tell him you are going to put on the board what makes you think six. Write the figure 6 on the board. Tell him to measure one more inch, and you will write what stands for it. Write the figure 7. Or tell him to erase one inch and you will write what stands for what is left.

Point to the figure 6 and have the child measure off the number, or point to 5 or 7 and let him measure.

Again measure off six inches and let him find the

figure; or measure off five inches, or seven inches and have him find the figures.

It is evident that this process is much like teaching words as standing for their ideas in reading, and the steps are in general the same. They are as follows:

1. The advance of the learner's mind in rethinking the old number.

2. The advance of the learner's mind in adjusting itself to the figure.

3. The advance of the learner's mind in making the association between the number and the figure.

The following device will help the learner in understanding and remembering this stage of notation:

0	00	000	0000	00000	000000	0000000
1	2	3	4	5	6	7
			00000000	000000000		
			8	9		
0	00	000	0000	00000	000000	0000000
one	two	three	four	five	six	seven
I.	II.	III.	IV.	V.	VI.	VII.
1	2	3	4	5	6	7
			00000000	000000000		
			eight	nine		
			VIII.	IX		
			8	9		

The Second Stage.—This is the stage which offers the most difficulty in teaching, and the teaching well of the work in this stage is of the highest importance.

In order to have a *good* basis to build upon in the work in this stage of notation, the notation of *ten, eleven,* and *twelve* must be taught in the same way as

the notation of the numbers from 1 to 9 was taught. Then the following principles of notation can be taught:

1. The one ten resembles the one one in being a one, but it differs from it in value.

2. Therefore its symbol is like that for one one yet different from it.

3. The same symbol is used, but it is different from it in being held in the second place by some figure to its right.

4. The difference in value expressed by a figure is because of position.

5. The first is one's, or unit's place, and the second is ten's place.

The following indicates how to proceed in teaching: Give the child twelve counters. Ask him how many ones in twelve. Tell him to show you how many tens in twelve and how many ones over. Ask him to write 12 on the board. Ask him what the 2 is; what the 1 is. He should readily see that the 2 is two ones, and that the 1 is one ten.

Teach eleven in the same way, using eleven counters.

Have the child write 10 on the board. Ask him what the 1 is; what the 0 means; why it is used.

Ask him if he can tell you now where one's place is in writing number; where ten's place is.

From this work well done the learner will be able to write 13, 14, 15, 16, 17, 18, and 19.

Work out 20 concretely with him, that is, with the

counters. Then have him write 30, 40, 50, 60, 70, 80, and 90.

The next point of difficulty will be the notation of 100 and numbers above it. One hundred may be worked out concretely as follows:

Give the child 100 counters. Have him divide them into tens by putting little rubber bands around each ten. Have him make them into one hundred by putting a rubber band around the ten tens. Have him tell how many tens and ones he has to write. Ask him what to put in ten's place; what in one's place. Have the learner then write 200, 300, 400, 500, 600, etc.

Importance of the Early Mastery of Notation.—The notation of numbers in both the science and art aspects simply must be mastered in the primary stage of number work. To fail to have the learner do so is *inexcusable.* The teacher can make no more fundamental error in teaching number than to fail to have students thoroughly to understand notation in the early number work. *It is an impossibility to teach students well the formal processes of addition, subtraction, multiplication, and division, if they do not understand well notation.* Let the student have well in mind notation, and the teaching of the formal processes of addition, subtraction, multiplication, and division *rationally* becomes easy. The importance of notation is not likely to be overestimated.

Enumeration.—Enumeration is the process of reading number symbols. Children are to be taught to read number symbols in connection with the work in nota-

tion. The two go hand in hand and may best be taught together.

The Multiplication Table.—The question, When and how to teach best the multiplication table? is one worthy of consideration. Many have felt that the old-time way of memorizing it by rote is a very poor way to learn it, and it certainly is an interest-killing, and time and energy wasting process.

It is evident that if, at the end of the third year, the child has mastered the relations in the numbers up to and including one hundred, he has mastered the multiplication table. For instance, in dealing with four, he learns that 2×2 are 4; in dealing with six, he learns that 2×3 are 6; in dealing with eight, he learns that 2×4 are 8; in dealing with ten, that 2×5 are 10; in dealing with twelve, that 2×6 are 12, and so on. In a similar way he learns in dealing with six, that 3×2 are 6; in dealing with nine, that 3×3 are 9; in dealing with twelve, that 3×4 are 12; in dealing with fifteen, that 3×5 are 15, and so on. And thus with the various numbers. For example, in dealing with nine, he learns that 1×9 is 9; in dealing with eighteen, that 2×9 are 18; in dealing with twenty-seven, that 3×9 are 27; in dealing with thirty-six, that 4×9 are 36, and so on.

From this study it appears that the multiplication table may be taught in connection with the various numbers throughout the entire first three years of number work.

This does not mean that the multiplication table is *to be taught incidentally;* for *to teach a thing inci-*

dentally usually means to make it of secondary importance and, therefore, to slight it. The multiplication table *must not* be slighted.

The teacher may set about to teach it systematically as follows:

In teaching, for instance, twelve, the table of twos should be learned to twelve; the table of threes, the table of fours, and the table of sixes also should be learned to twelve.

In teaching twenty-four, the table of twos, the tables of threes, the table of fours, the table of sixes, and the table of eights should be learned.

In teaching thirty-six, the table of threes, the table of fours, the table of sixes, and the table of nines should be learned.

In teaching fifty-six, the table of sevens, and the table of eights should be learned.

Enough numbers have been mentioned to show the nature of the work. All other numbers involving the tables should be taught in the same manner.

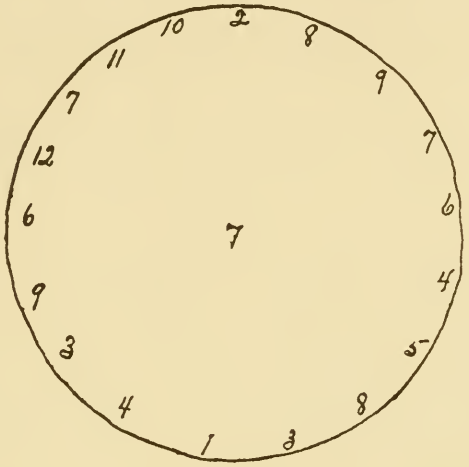
The advantages in teaching the multiplication table in this way are as follows:

1. The opportunities for reviewing the tables are so frequent that the learner will almost surely learn them thoroughly.

2. There is a gradual growth which makes the burden of memorizing light.

Much drill must be given in order that the association be not successive. It is very annoying if, for instance, when the child encounters 7×7, he must repeat

the table of sevens up to that place to get the number 49. It is desirable for 49 to come into consciousness instantly when he wants the product of 7×7. The following device is helpful in this work:



The seven in the center of the circle may be changed to 2, 3, 4, 5, 6, 8, or 9.

Teacher's Helps.—The following are helpful books for teachers on the subject of primary number:

1. Wentworth and Reed's Primary Arithmetic, Ginn and Co., Chicago.

2. Cook and Cropsey's Eelementary Arithmetic, Parts I. and II., Silver, Burdett and Co., Chicago.

3. Speer's Primary Arithmetic, Parts I. and II., Ginn and Co., Chicago.

4. Pierce's First Steps in Arithmetic, Silver, Burdett and Co., Chicago.

5. The Werner Arithmetic, Book I., The Werner Co., Chicago.

CHAPTER X.

STEPS IN NUMBER—CONCLUDED.

General Scope.—In this stage of number work is included all the work the learner does in school in arithmetic beyond the work in what has been called the primary stage. In this stage are to be taught the formal processes of *addition, subtraction, multiplication* and *division.* An intensive *study of denominate numbers is made. Fractions,* both common and decimal, *percentage,* in its applications, *ratio, proportion,* etc., are also taught.

It is the purpose to study here the method of only the elementary parts of this work. The method of the advanced parts of arithmetic, however valuable, is beyond the scope of the present studies.

The Formal Process of Addition.—The learner has been dealing with addition for almost three years now, but not with the formal process of addition. This will not be difficult for him now.

There are two stages in teaching it, as follows:

1. The teaching of those problems in which the sum of the addends in any order does not equal ten.

2. The teaching of those problems in which the sum of the addends in any order equals or exceeds ten.

123+234+522 illustrates with a problem in the first stage, and 2896+8637+231 illustrates with a problem in the second stage.

The First Stage.—This stage is quite simple and is easily taught, because it does not involve the idea of reduction. The procedure in teaching it is as follows: Send the learner to the board and tell him to write twenty-five; then tell him to write thirty-two under the twenty-five. Ask him to add the two and the five. Ask him what his two is, and what his five is; then what his seven is. Tell him to write the seven where he thinks it belongs. If he does not get it in the right place, show him where it is *customary* to write it. Now lead him by questions to see that the two and three are tens. Have him add them, and ask him if he knows where to write the five and why. Then ask him how many twenty-five and thirty-two are.

If the child understands this problem, he will solve the next one without help. Give him a goodly number to fix well in mind the form of such problems.

The Second Stage.—This stage is more complex and offers more difficulty in teaching, because it involves the idea of reduction. The procedure in teaching it is as follows:

Tell the learner to write on the board, or slate, or note-book fifty-six. Tell him to add to it thirty-four. Lead him by questions to see that the six and the four are ones; then that their sum is ten ones. Then lead him to see that his one is one ten and must be put in

ten's place, and that he has only naught to put in one's place. Let him write the one in ten's place and the naught in one's place. Lead him by questions to see that the five and the three are tens; and that their sum is eight tens. Let him write it in ten's place. Then show him that *for convenience* the one ten is not written but held in mind and added to the three and five tens and the sum of all of them written.

From this start problems gradually increasing in length and difficulty are given and solved, the reason for each step being obtained from the students by the questions of the teacher.

A degree of development will soon be reached which will make it desirable to give the names and work out the meaning of the term—*addend* and *sum*—used in addition; also the principle that *only like numbers can be added.* These, if taught in the best way possible, will be taught *inductively.*

It is to be noticed that the old erroneous notion of "carrying to the next higher order" is entirely unnecessary, and easily avoided when addition is rightly taught.

The Formal Process of Subtraction.—The learner has been solving problems in subtraction for about three years already, but not problems in the formal process of subtraction. Having also learned notation well, he now has a good basis for the work in subtraction as a formal process.

As in addition, there are two stages in teaching this process, as follows:

1. The stage in which those problems in the subtrahend of which the number in any order is smaller than the number in the minuend in the same order, are taught.

2. The stage in which those problems of which the minuend has a number in any order smaller than the number in the same order of the subtrahend, are taught.

4867—2534 illustrates with a problem in the first stage, and 2365—1758 illustrates with a problem in the second stage.

The First Stage.—This stage offers little or no difficulty in teaching because of its simplicity. The procedure in teaching it is as follows:

Have the learner write on the board, for instance, 875 and under it 352 and tell him to take one from the other and write the result where it should be written. From what he has learned in notation and addition he will almost surely catch the idea in the first problem. Then all that is necessary is to give him a number of problems gradually increasing in difficulty.

The Second Stage.—In this stage the learner will encounter a real difficulty, because it is made somewhat complex by the reduction involved. The procedure in teaching should be somewhat as follows:

Tell the learner to place 34 on the board and subtract 18 from it. He will know that 18 may be taken from 34, but he comes face to face with a difficulty at the start; namely, he can not take 8 from 4. The teacher now leads the learner to see what to do,

concretely. Give him 34 counters, and tell him to make them into tens. He makes them into 3 tens and places a rubber band around each ten. Lead him to see that the 34 is the symbol of 3 tens and 4 ones. Now ask him to take away 8 one-counters. In order to do this he must change 1 ten-counters into ones. Then ask him how many tens he has and how many ones. Have him remove the eight ones, and write on the board the number of ones he has left. Ask him how many tens he has left. Tell him to take away one ten and write on the board the number of tens he has left.

In this concrete way the learner is led to see that when the number in any order in the minuend is smaller than the number of the same order in the subtrahend the subtraction is performed by first reducing one unit of the next higher order to units of this lower order, and then taking away the number in the subtrahend from all the units of that order.

If necessary, other problems should be solved in this concrete way. Then the further work will consist in having the pupil to solve problems gradually increasing in length and difficulty, and in teaching him the meaning of the terms employed in subtraction. These terms may be taught inductively and will be so taught in work of the best kind.

It should be noted that, if subtraction be taught in this rational way, there arises no necessity for introducing the fiction of "borrowing one from the next higher order and paying back."

The Formal Process of Multiplication.—As in the formal process of addition, and of subtraction, the pupil should now be well prepared for multiplication as a formal process, since he has been solving little problems in multiplication for some years.

There are in this work also two stages, as follows:

1. That stage in which the problems solved have multipliers consisting of but one order; as, 358×6.

2. That stage in which the problems solved have multipliers consisting of more than one order; as, 358×64 or 3860×238.

The First Stage.—This offers very little, if any, trouble in teaching, if the work up to this place has been reasonably well done. The following is a very good way to proceed in teaching it:

Ask the learner to write 125 on the board and write 7 ones under it and draw a line beneath. Ask him how many 7×5 are, and have him write the result in the proper order. Then have him write the result of 7×2 in the proper order; then, the result of 7×1 in the proper order. At this stage of the work the form is:

125
7

35
140
700

Now ask how the result may be written so as to appear as one number. If the learner can not see, he

will have to be shown, since *the form is purely a matter of convenience.*

Further work on more difficult problems is then to be given.

The learner must also be taught that a problem of this kind is a problem in multiplication.

The Second Stage.—This stage offers some points of difficulty in teaching, but the learner will readily master them if the work as indicated in these studies has been done moderately well up to this place. The procedure in teaching is as follows:

Ask the learner to multiply, for instance, 236 by 24. He will probably not see how to multiply by so large a number. Lead him to see that he can multiply by 4. This he will readily do since it is like the work he has been doing in the first stage of multiplication. Next he is led to see how to multiply by the 2 tens. He knows that $2\times6=12$, but he must be led to see that it is 12 tens. This he will see when he is led to see that 2 tens times 6 ones is 12 tens. He is told to write the 12 tens where it belongs. Have him fill out one's place with a naught. The next step is to lead him to see that 3 tens multiplied by 2 tens gives 6 hundreds. Let him write the product where it belongs and fill out the places with naughts. And, lastly, he must be led to see that 2 hundreds multiplied by 2 tens gives 4 thousands. Let him again write the result where it belongs and fill out with naughts. Now he is to be led to see that to get the numbers all together in the product he must add. The form of the above solution is as follows:

236
24
———
944
120
600
4000
———
5664

The next step is to lead the learner to see how to shorten the form by writing as one number 120,600, and 4000, and that in this case it is not necessary to write the naught in one's place, since we can tell what the 2 is by its being under 4 tens. So the form is shortened to the following:

236
24
———
944
472
———
5664

The learner will frequently catch the idea from the first problem. If he should not do so, other problems must be worked out in the same way. Then the further work consists of the solution of problems of various numbers gradually increasing in difficulty. From the above the teacher should see how to teach such problems as 876×40 and 8002×402. No new principles are involved.

Next the meaning of the terms, *multiplicand, multiplier,* and *product* should be taught.

The Formal Process of Division.—There are also two stages in teaching the formal process of division:

1. What is commonly called *long division.*
2. What is commonly called *short division.*

The Order of the Stages.—There is some difference of opinion as to which should be taught first, long division or short division. There are, no doubt, successful teachers who teach short division first and equally successful ones who teach long division first. It probably does not make any vital difference which is taught first.

Any abridged form is usually more difficult to understand than the full form in any process. Short division is an abridged form and should therefore properly come after the full form is known. To teach short division first is said to make long division more difficult for the learner.

The First Stage.—After the learner has had the work up to this place as indicated in these studies he should be in such an attitude of mind that he would want to see the reason for each step in any problem. The formal process of division should be taught in harmony with this idea; that is, *rationally.* The procedure in teaching it is as follows:

Place on the board, for instance, 456 and place the divisor 3 in its position, and tell the pupil you want to find how many threes in 456. Ask how many threes in 4. When the learner says one, tell him you will place

it where it belongs, and put it there. Now he must be led to see that 4 is four hundreds and so the 1 is one hundred. Ask him to put naughts so as to show that the 1 is one hundred. Then he will have to be shown that the 3 is multiplied by 100 and the product written under 456, and then subtracted from it. The teacher now asks the learner if there are any 100 threes in 156. The next step is to lead the learner to give the number of threes in 15, and to see that the 5 is 5 tens. Then multiply across and subtract. Next lead him to see that the threes in 6 are 2 of one's order. The form now stands as follows:

```
3)456(100
  300  50
  ---   2
  156
  150
  ---
    6
    6
```

Now ask the learner how many threes in 456, and lead him to see how the quotient may be written as one number.

Have him to understand that such a problem is *a problem in division.*

Now give him a small problem to solve, for instance, 32÷2. Lead him to give reasons for each step. Have him solve many problems gradually increasing in difficulty. When he begins to get skillful to some degree show him how the form is further shortened by, instead of writing the two naughts at the right of the 3, writing

merely the 3 under hundreds; also, that a similar thing is true of 15, and that the 5 and 6 are brought down only as needed. The shortened form is then as follows:

```
3)456(152
  3
 ---
  15
  15
 ---
   6
   6
```

Now give the learner problems gradually increasing in difficulty to solve according to the shorter form.

The Second Stage.—The teaching of short division will now be very easy. It is evident that it is only a further shortening of the form. Using the same problem, for instance, show the learner how the form may be shortened into short division in the case of easy problems. Then give him plenty of suitable problems to solve by the shortest form, and all will be well.

Conclusion.—After having mastered the four fundamental processes, the learner is ready to study the various applications of these in the arithmetic work proper.

It is beyond the scope of these studies to investigate the method of teaching these various applications.

If the work so far has been done as advocated in these studies, the learner will be able to take care of himself in the further work, to a large degree.

CHAPTER XI.

SUBJECT-MATTER, PURPOSE AND BASIS OF NUMBER.

General Nature.—It will be remembered that the subject-matter of any subject or lesson is the material of study in that subject or lesson; also, that it consists of (1) the facts in the subject, and (2) the relations of the facts peculiar to that subject alone.

Accordingly it may be said that the subject-matter of number is, in general, the facts a pupil must learn, to know number, together with the proper relations of these facts.

A closer examination will show (1) what these facts of number are, and (2) what the relations in which they are to be considered are. The facts to be mastered in number study are the facts of the *number continuum,* or *number series.* That is to say, the facts to be mastered in the study of number are the facts of the numbers from one to infinity. The number continuum, or the number series, consists of the numbers from one on, including one, of course.

And the relations in which these numbers are to be studied are those indicated in our previous study. They are:

1. The numbers as *wholes.*
2. The numbers as *to what they are made up of and what they may be separated into.*

3. The numbers as *to their notation.*

4. The numbers as *to their denominate and general applications.*

From the above the following definite statement for the subject-matter of number is obtained: *The subject-matter of number is the number continuum, each number* (1) *as a whole;* (2) *as to its notation;* (3) *as to what it is made up of and what it may be separated into and* (4) *as to its denominate and general applications.*

The Purpose of Number.—It is to be remembered that the purpose of any subject is to be determined by the effect the pursuit of that subject has on the life of the one studying it. Now the study of number as a subject, like the study of any other subject, affects the mind in two general ways, as follows:

1. By the study of number the learner gets knowledge valuable for guidance in living. This is called the *knowledge-giving purpose.*

2. The learner's mind gets exercise, and by means of this exercise his mind grows in ability to think readily and accurately. This is called the *disciplinary purpose.*

The Knowledge-Giving Purpose.—Some subjects hold their places in the school curriculum because of their knowledge-giving value mainly, while others hold their places in the school curriculum because of their disciplinary value mainly. Contrary to popular opinion number should hold its place in the school curriculum mainly because of the useful knowledge the study of it

gives. This knowledge is such that it gives the learner the ability to grasp *definitely* the world of quantity which would otherwise remain only vague wholes to him. Thus the learner needs and uses his knowledge of number wherever the mind has occasion to think any kind of quantity. Occasions for thinking quantity arise whenever the mind has to do with *time, distance, resistance,* or *value,* in any specific way whatever.

Guidance in Industrial Life.—A knowledge of number is valuable in every aspect of life, but is most obtrusively valuable in the industrial life of a people.

It helps to make this point clear to classify what people who are engaged in industrial life mainly do. There will be found to be mainly the following three lines:

1. The production of commodities.
2. The preparation of commodities.
3. The distribution of commodities.

By the production of commodities is meant the production of corn, wheat, oats, barley, hay, cattle, hogs, poultry, wool, flax, hemp, fruit, cotton, coal, stone, iron, silk, etc.

By preparation of commodities is meant their change from conditions in which they can not be used to conditions fit for use, as manufacturing, etc.

Distribution of commodities means the process of sending them from place to place, to the points of consumption.

Commodities could be but poorly produced without a knowledge of number. Land must be measured, time

must be measured, feed must be measured, fertilizers must be measured, sprays, medicines, resistance, and hundreds of things that come up in connection with these things directly demand a knowledge of number. And indirectly machinery, sheds, tools, houses, harness, etc., required in the production of commodities demand a knowledge of number for making and keeping. In short, commodities could be produced in only the most extremely primitive way without a knowledge of number.

The preparation of commodities in adequate degrees would simply be an impossibility without the guidance which a knowledge of number furnishes. In preparing products constant need of measurement arises. The machinery manufactured, the food products made, the medicines, the paints, fillers, varnishes, glass, earthen ware, china ware, carpets, rugs, dress goods, etc., could never be made without the measurement of quantity, and no accurate measurements could be made without number. A knowledge of number is thus of absolute value in the preparation of commodities.

In the distribution of commodities a knowledge of number is very necessary for guidance. Things can not be distributed without involving the necessity of exchange. And in exchange the need for measurement of quantity is constant. There can be no traffic, no buying or selling without measurement of quantity. The knowledge of number is necessary in all kinds of exchange.

The distribution of commodities requires railroads and their equipments, steamboats, steamships, the dredg-

ing of rivers, docks, canals, locks, etc., none of which can be made without the guidance the knowledge of number gives in measuring quantity.

Guidance in Sciences.—In the sciences of astronomy, physics, chemistry, geology, geography, etc., a knowledge of number is constantly needed. It is a safe assertion to say that the natural sciences could never have reached the degree of development to which they have attained without having been supplemented by a knowledge of number.

This study realizes to us that, when it is said that *the main purpose of number is to give the learner knowledge which will enable him to make a vague whole of quantity definite in his effort to think the external world,* the statement is much more comprehensive than one would at first suppose.

The Disciplinary Purpose.—While the disciplinary value of the study of number is important, it is now believed by some most excellent thinkers that it has commonly been overestimated.

The following quotation from Dr. W. T. Harris indicates something of this thought: "The true psychological theory of number is the panacea for that exaggeration of the importance of arithmetic which prevails in our elementary schools. As if it were not enough that the science of number is indispensable for the conquest of Nature in time and space, these qualitative-unit teachers make the mistake of supposing that arithmetic deals with spiritual being as much as with matter; they confound quality with quantity, and conse-

quently mathematics with metaphysics. Mental arithmetic becomes in their psychology 'the discipline of pure reason.' ''

The study of number exercises nearly all the mental faculties to some extent, but it is usually said to be most excellent for cultivating reasoning.

Now it is true that the study of number develops the reasoning powers, but inquiry should be made concerning what kind of reasoning powers it develops. Number develops mathematical, or necessary, reasoning. The thing dealt with is fixed, definite, and necessary. There are no questions as to how the mathematical problem will act in response to stimuli or in an effort to adapt itself to its environment. The questions which have to do with the great problems of human life, its emotions, passions, hopes, vicissitudes, disappointments, in brief, its struggle in its various and multiform aspects, are not directly dealt with in mathematics. And since such subjects are not reasoned about, such reasoning power is not developed. In short *the power of reasoning developed in mathematics is not the power of reasoning which most persons need most in life.* One's observation does not have to be very acute to observe persons who are acute reasoners in mathematics but who are not even mediocre in history, politics, religion, ethics, sociology, those lines of human endeavor so intimately connected with life.

A systematic analysis of the purposes of number in the school course will certainly show that *its highest*

value is in the knowledge it gives; and that the value of mathematics is and has been overestimated.

Conclusion.—An unprejudiced analysis of the purpose of number leads to the following conclusions:

1. The knowledge-giving purpose is the main purpose of number study.

2. The knowledge-giving purpose of studying number is to gain knowledge which will give guidance in making vague wholes of quantity definite in the effort to think definitely Nature in time and space.

3. That this in itself is an entirely sufficient reason for studying number.

4. That, while the study of number gives mental dispicline, its value from this point of view is quite commonly overestimated.

Basis.—The learner's basis for studying number when he comes to school consists in the main of three things:

1. He knows many qualities of objects; such as, hard, soft, rough, smooth, sweet, sour, white, yellow, black, light, heavy, etc. Some of these he knows pretty definitely, and some of them only vaguely. But they enable him to limit objects in time and space. This he must do in order to get any kind of start in measuring.

2. He has ideas of quantity as vague wholes, as indicated by the use of such terms as far, near, heavier, lighter, larger, smaller, etc.

3. He can usually count to some extent. If he

can not count it is probably a good thing to teach him to count as a part of the basis for real number work. But the mistake of thinking that since he can count he necessarily knows number must not be made.

CHAPTER XII.

ERRORS IN TEACHING NUMBER.

Prevalence of.—Number teaching presents to the teacher many an opportunity for error. And since so many of the teachers in the primary schools teach without having studied current approved methods in number, many mischievous errors are made. A second cause of these errors is that many teachers hold the unreasonable notion that all that is necessary in way of preparation to teach number well is a knowledge of number. The following is a list of common errors:

1. Symbols, figures, are taught instead of number.
2. Teaching so that the learner gets the wrong conception of number.
3. Teaching in an unorganized, unsystematic, purposeless way.
4. The teaching the formal processes of addition, subtraction, multiplication, and division too early, and unrationally.
5. Too much drill upon one number in the effort to exhaust it before taking up other numbers.
6. Failure to bring out and emphasize the relations sufficiently among the various topics taught.
7. Too much emphasis on complexity and not enough on accuracy.

Symbols Instead of Numbers.—One good authority

says the following on this point: "The fundamental defect in dealing with arithmetic is that *expression* is treated instead of *number*. Symbol is taught instead of substance."

Dealing with figures instead of with numbers is formal and meaningless and places the mind's emphasis upon the symbol without the meaning which should be symbolized. It is like learning to repeat words without knowing their meaning. It is the kind of work which fails wholly to call forth the mind's natural activity in learning number. It is the kind of work which arrests the development of the number faculty of the mind, the kind of mental food which gives mental indigestion.

Wrong Number Concepts.—It perhaps does not put it too strong to say that three-fourths of the persons who have been dealing with number for years either have no *very definite* idea of what number is or have a wrong idea of what number is. Perhaps the two wrong notions of number most generally held are as follows:

1. The notion that number is an inherent property of objects, such as form or weight.

2. The notion that the symbols of number, the figures, are the numbers.

These two wrong concepts of number result from bad teaching in the number work.

The first idea of number makes number a qualitative thing instead of quantitative and grows out of such teaching as follows: the teacher has the child to observe an object and tells him it is *one;* then another, and

tells him it is *two;* a third, *three;* another, *four,* etc. Then she proceeds to work with the numbers as if he knew them actually.

The second idea of number makes the symbol, the figure, the number, and it grows out of the usual way of teaching number. Figures are introduced and dealt with from the start. Little problems are given to be solved on the board, note-book or slate. The learner reaches a certain degree of skill in manipulating figures. They are so important a part of the work that he very naturally grows into thinking that they are actually the numbers.

Unsystematic Number Teaching.—Much number teaching in the past and a good deal of it at present is poor because of its unsystematic, fragmentary character. Teachers have often not known what the average child can do in number, what he knows of number when he comes to school, nor when and why he should begin the number work: in short, they have thought through no systematic plan of teaching number.

This condition of things must be more or less common so long as so many teachers attempt to teach number without having been students of special method in it.

The mischief such unsystematic work does is (1) the learner makes progress too slowly; that is, it wastes his time and energy; (2) it does not discriminate between the important and the unimportant in number; (3) it is uninteresting and gives the learner undesirable habits of thought.

Formal Teaching of Fundamental Processes.—The

formal processes of addition, subtraction, multiplication, and division are rational. That is to say, the form of these processes is founded on thought, but so often as usually taught to the learner the form is entirely without reason. Children who are sufficiently developed to study these formal processes at all may be led to see the reason for each step, and they should by all means be taught so they may do so. The merely formal teaching of these processes is responsible for the senseless jargon of "carrying to the next higher order" in addition, and of "borrowing one from the next higher order" in subtraction.

The meaningless manner of teaching the form of these fundamental processes is one of the most widespread as well as most inexcusable sins against the learner in number teaching.

Exhausting the Number.—The custom which still prevails in some schools of taking up one number, for instance 6, and doing all possible to be done with it before beginning any work with any succeeding numbers, is to be condemned in very strong terms. To keep the learner so long on one number is not only uninteresting and monotonous but positively injurious to him.

1. It arrests development.

2. It is in violation of the mind's natural action in learning number.

3. It deadens the learner's native interest in number and tends to a dislike for the subject.

Relations Among Topics.—Many teachers teach the various topics, as division, ratio, fractions, addition and

subtraction of simple numbers, addition and subtraction of denominate numbers, etc., as isolated. This is a grave error, for thinking mathematically is only comparing numbers and processes and discovering their likenesses and differences; that is, tracing out relations. Nothing else so well reveals the nature of the various topics in number work as to compare them, and trace out the relations among them. A failure to do this results in the learner's failure to see number as an organic whole. He rather gets the idea that the various topics are not essentially related.

Complexity and Accuracy.—The highest end to be aimed at in number work is *absolute accuracy* in the application of ideas of number to the realities of life. It is to be hoped that there is a growth away from the time-honored custom of making the chief aim of number work the ability to 'work knotty problems.'' Absolute accuracy in addition, subtraction, multiplication, division and other simple number processes is a much more important consideration. And after accuracy in importance comes *rapidity.* These two things, *accuracy* and *rapidity* make up *skill,* and *skill* in the solution of the problems of life in so far as the conquest of Nature in time is concerned is the cardinal idea in all number work. Thus to slight accuracy and rapidity in the simple number processes and devote the time largely to the solution of problems involving to a high degree complexity of relations and processes is an error.

CHAPTER XIII.

THE PURPOSE OF GRAMMAR.

The Traditional Purpose.—There was a time in the history of our schools when the curriculum consisted of only spelling, reading, writing and arithmetic. But in time it was felt that the children in communicating their thoughts and feelings did not use as good English as they should. It was also seen that there was no subject in the school curriculum that had as its specific aim to give the children a knowledge of how to do this. As this thought and feeling grew in the minds of the people, there became a real felt need for some subject in the school curriculum the study of which would give the children a knowledge of how to use good English in expressing their thoughts and feelings. And this is the thing which brought grammar as a subject into the school curriculum. It was thought that if the children knew *how* to use good English, they would do so in speaking and writing. So it was said that the purpose of grammar was to teach *how* to speak and write correctly. This was thought to mean the same as to give the habit of speaking and writing correctly. This idea of the purpose of grammar was handed down from one generation to the succeeding, and accepted as correct for a long time, and for this reason is called the *traditional purpose* of grammar. That is to say, the purpose

handed down from one generation to another. So now we say the traditional purpose of grammar is, *that its study is to teach us how to speak and write correctly.*

It does not seem to have been considered for a long time whether the study of grammar had more than one purpose; and, of course, it was not seen that it has a primary purpose of great importance and a subordinate purpose of much less importance.

How Purpose Is Determined.—The purpose of any subject in the school curriculum or of any lesson is determined from the effect the pursuit of that subject or lesson produces on the life of the learner. There is absolutely no other way of getting at it.

Illustration.—If one studies the following selection from Browning, he gets the thought that progress is the characteristic which distinguishes man from God on one hand, and from the beasts on the other. So, if he seeks the purpose of the selection, he must determine it from the effect on his life, and say its purpose is to set before us the message that progress distinguishes man from both God and the beasts:

"Progress, man's distinctive mark alone,
Not God's, and not the beasts'; God is, they are,
Man partly is, and wholly hopes to be."

Thus, if it is held that the purpose of a study is one thing, and the study actually accomplishes an entirely different thing in one's life, there is a contradiction. This being the condition of things, people will sooner or later think that the purpose is not what it has been held to be. And if the thing accomplished is

a desirable thing, it will come to be regarded as the purpose of the pursuit of the subject.

The Actual Purpose of Grammar.—It will be remembered from previous study that the pursuit of any subject gives in general two things: *knowledge* and *mental discipline.* Thus the pursuit of grammar will give these two things, and will have in general these two purposes. That is to say, grammar has a *knowledge-giving purpose* and a *disciplinary purpose.*

The question whether the knowledge-giving or disciplinary purpose of grammar is more important immediately suggests itself. Keeping in mind how the purpose of any school subject is determined, we may profitably study this question.

Effect of the Study of Grammar.—The study of grammar does mainly the three following things for the one who pursues the subject:

1. It gives excellent mental discipline.
2. It gives knowledge which guides to some extent in speaking and writing correctly.
3. It gives knowledge which forms a basis for other work in language subjects.

The extent to which grammar does these three things respectively must be taken into consideration, as well as the value to be derived from each one, in a systematic study of the value of the pursuit of grammar to the learner.

Mental Discipline Furnished by the Study of Grammar.—Mental discipline is mental exercise in *thinking, feeling* and *willing* for the following ends:

1. Developing accurate and ready thinkers.

2. Developing love of truth, beauty, and righteousness.

3. Developing habits of self-control and self-direction.

Mental discipline is based upon the principle that *the mind learns to do by doing.* So the question for study here is, What does the mind get exercise in, in studying grammar? The answer to this question leads into the study of three topics in psychology, *conception, judgment* and *reasoning.*

Conception.—Our ideas of the various things expressed by common nouns are our concepts of these things. Thus the words, *tree, barn, boy, flower,* and *bird* express concepts. These words each expresses the attributes common to all the objects of the class which each names. That is to say, each word names a class. The terms, *concept, general idea,* and *general notion* all mean the same thing. Thus conception is the mind's process of getting its general notions, or ideas. And a general idea is an idea made up of the common truths of a class of objects. The following is the formal definition for conception: *Conception is the mind's process of forming an idea made up of the common attributes of a class of objects.*

The Mind's Natural Way of Forming Concepts.—The mind naturally gets its general ideas from the study of particular objects. In this way the child got his idea, *man;* his idea, *dog;* his idea, *tree;* his idea, *flower;* his idea, *horse;* his idea, *book,* and so on.

Suppose the first barn a child sees is a square one painted red, with a roof sloping one way, containing only hay and corn. From this particular object his idea of a barn will contain *square form, red color, this special kind of roof, and filled with hay and corn.* Say the next barn he sees has all these attributes but *square form.* From the study of these two particular barns, his idea of a barn will contain *red color, roof sloping one way, filled with hay and corn.* To be brief, the child from examining particular barns, goes on correcting his idea of a barn by dropping out attributes, and possibly adding some, until his idea contains just those attributes which barns possess in common. This is the way the mind *naturally* gets its concepts in life. When it examines the first particular object, it forms a *tentative* or *trial, concept.* But it goes on and examines other particular objects to correct this tentative concept.

The logical steps in an act of conception are as follows:

1. The mind has an activity corresponding to some particular object.
2. The mind repeats this activity with other similar objects.
3. The mind compares and contrasts these objects.
4. The mind abstracts by holding in consciousness the common attributes and dropping from consciousness more or less the others.
5. The mind generalizes by extending the common attributes of the particular objects examined out to all the objects of the class.

6. The mind thinks the name of the class.

The first two steps are frequently put together, thus making five steps, as follows:

1. Examination of particulars.
2. Comparison and contrast.
3. Abstraction.
4. Generalization.
5. Denomination.

The two following points in the study of conception in connection with method in grammar are worthy of emphasis:

1. *Naturally* the mind in getting concepts comes in actual contact with objects, the material of study, and learns about them *first hand.*

2. In learning grammar many concepts are to be acquired; concepts of the sentence, the noun, the pronoun, mode, tense, person, gender, a modifier, a phrase, a clause, and so on, a great stock of concepts. Thus learning grammar calls into activity in many places the mind's process of conception.

Judgment.—The concept, as learned, is expressed by the common noun, and similarly the judgment is expressed by the sentence. It is usually said that the sentence expresses the thought, and correctly so, for the *thought* and the *judgment* mean the same thing.

The mind at some time in its past experience got the idea, *trees;* also, the idea, *grow.* Now it grasps the relation between these two ideas and asserts it, and thinks *trees grow.* When the mind does this it is judging, and the result of judging is the judgment.

It should be seen that in judging there are three activities involved, as follows:

1. The mind reacts the old idea, *trees.*
2. The mind reacts the old idea, *grow.*
3. The mind asserts the relation between them.

The following is the formal definition for a judgment: *A judgment is the mental product which the mind reaches by asserting the relation between two ideas.*

Opportunity is offered at every step in learning grammar for exercising the judgment. No definition can be made, no classifications, no principles worked out, no steps in parsing or analyzing taken without exercising the judgment at each step. Grammar thus furnishes fine opportunities for cultivating the judgment.

Reasoning.—In judging the mind grasps the relation between ideas, and in reasoning it in a somewhat similar way grasps the relation between judgments. But in reasoning there are three judgments involved, and they are so related that the last one is reached because of its relation to the two preceding. The following will illustrate it:

This object has voluntary motion.
This object is an animal.
This object has voluntary motion.

The sentence, "Animals have voluntary motion," expresses one judgment; the sentence, "This object is an animal," expresses another judgment; and the sentence, "This object has voluntary motion," is reached by the mind because of its relation to the two preceding

judgments. The formal definition for it is as follows:

Reasoning is the mind's process of reaching a judgment because of its relation to two preceding judgments.

From one point of view there are three classes of reasoning: 1. Deduction. 2. Identification. 3. Induction. The following will illustrate:

Deduction.

Animals have voluntary motion.
This object is an animal.
This object has voluntary motion.

Identification.

Animals have voluntary motion.
This object has voluntary motion.
This object is an animal.

Induction.

This object is animal.
This object has voluntary motion.
Animals have voluntary motion.

These three kinds of reasoning may best be known from the description of the third judgment in each one.

In deduction the third judgment has for its subject the idea of some particular object about which the idea of some attribute is asserted.

In identification the third judgment has for its subject the idea of some particular object of which the idea of some class is asserted.

In induction the third judgment has for its subject the idea of some class about which the idea of some atrribute is asserted.

The mind's ability to think readily and accurately consists simply in its ability to form accurate concepts

quickly, make correct judgments speedily, and reason readily and logically. Now all definition making in grammar, if naturally done, is one of the very best exercises in forming accurate concepts, and in making correct judgments. Making definitions is unsurpassed as an exercise in cultivating inductive reasoning. Nothing is more helpful in developing the power of accurate and ready inductive reasoning. All parsing and analyzing exercises identification at every step. These activities are accompanied by the feelings which always accompany ready, accurate, logical thinking. These are feelings of energy, triumph and exaltation as well as a love for the beauty of the sentence.

Now, no subject in the school curriculum is better adapted to give discipline in these mental processes than grammar. Thus *the disciplinary value of grammar in education is very great, indeed.*

Knowledge of How to Speak and Write Correctly. —That it is a purpose of grammar to furnish knowledge which will be valuable for guidance in speaking and writing no one will deny. But that the knowledge gained by the study of grammar is so valuable for guidance in speaking and writing as has been supposed usually is very doubtful. It is not evident that so much definition work, parsing and analyzing done in grammar give knowledge valuable for guidance in using good language to any very large extent. On the other hand it is evident that they do not.

But granting that the study of grammar does give

knowledge of this kind, the following questions remain to be answered:

1. Just what is this knowledge?

2. Is the study which gives such knowledge adapted to the life of the learner when he is forming his language habits?

3. Does such knowledge after one obtains it guide to any very large extent in using good language?

Just What Such Knowledge Is.—When one attempts to enumerate points of knowledge which guide him in his use of language, he finds much less to enumerate than he might have at first supposed. But the following general points may be enumerated:

1. A verb must agree with its subject in person and number.

2. The right case forms must be used for nouns and pronouns in the various cases.

3. The right number forms must be used for nouns and pronouns in various numbers.

4. The right gender and person forms must be used when nouns and pronouns have various genders and persons.

5. The correct principal parts of verbs must be used when the verb is in its various tenses, modes and voices.

These five general principles cover most of the grammatical knowledge that guides in using good language, and what they do not cover is of the same general character.

It is plain that to be able to apply these points

of knowledge in the use of language one must have an *intensive knowledge* of grammar and be also a *reflective* user of language. And one to possess such knowledge must have years of intensive study and maturity of thought.

Its Study Not Adapted to the Child.—A study of child nature reveals the fact that there is a language period in the life of the child when he learns language as naturally as he learns to walk; also, that if the child does not learn to use fairly good language in this period, he either never will or will do so at great cost and with much difficulty. It is perhaps not too strong a statement to say that if the learner does not learn in the language period to use pretty good language, he never will acquire the *habit* of good language. This language period in the child's life is from the time he begins to learn to use language up to fourteen approximately.

The question whether the study required to learn those points of grammatical knowledge claimed to guide in using good language is adapted to children in the language period here suggests itself. No one who understands how hard a subject grammar really is will answer in the affirmative. No subject in the school curriculum requires closer analyzing, judging, and reasoning than grammar. No subject, not even geometry or psychology, is more difficult. And because of this grammar is a subject not at all suitable for children in the language period.

The Guidance Grammatical Knowledge Really

Gives.—If to *know how* to use good language and to *have the habit* of using good language were the same thing, grammatical knowledge would be of much greater value. But they are evidently widely different things. A knowledge of grammatical principles is no guarantee that one will habitually use good language. A friend who is an excellent grammarian, and who well knows what good language is, makes many common errors in speaking and writing. It is unnatural to learn rules and then form one's language by these rules. Naturally, the language is born first and the rules are derived from the language. One's habits are formed in language before he has reached a development sufficient to study with any marked success, grammar. The most that can be expected of grammatical knowledge in the way of guidance is of a negative character. It shows some things to avoid. As as matter of fact, though, under the tension of thought and feeling we usually forget these negative precepts and conform to old habits. Then again grammar deals with only correctness in the sentence. Correctness is only one element of good language. Good language has as its characteristics *correctness, clearness, energy,* and *elegance.*

Thus the foregoing study shows grammatical knowledge to be of much less value for guidance in the use of good language than is usually supposed.

A Basis for Other Language Work.—It is evident that the study of grammar gives knowledge which makes a good basis upon which to build in teaching rhetoric, literature, German, Latin, Greek, French and so on.

This is an important part of the knowledge giving purpose of grammar. Careful thinking shows that this aspect of the knowledge-giving purpose is more important than the aspect of giving knowledge for guidance in speaking and writing.

Summary.—The foregoing study leads to the following conclusions:

1. The most important purpose of grammar is the excellent mental discipline which its study furnishes.

2. The next purpose in importance is the acquirement of knowledge which furnishes a basis for other language subjects.

3. The purpose of least importance, contrary to popular opinion, is the acquirement of knowledge for guidance in speaking and writing good language.

Professor Whitney's Thought.—Mr. W. D. Whitney, America's foremost grammarian, says: "That the leading object of the study of English grammar is to teach the correct use of English is, in my view, an error, and one which is gradually becoming removed, giving way to the sounder opinion that grammar is the reflective study of language, for a variety of purposes, of which correctness in writing is only one, and a secondary or subordinate one—by no means unimportant, but best attained when sought indirectly. It should be a pervading element in the whole school and home training of the young, to make them use their own tongue with accuracy and force, and along with any special drilling directed to this end, some of the rudimentary distinctions and rules of grammar are conveniently

taught; but this is not the study of grammar, and it will not bear the intrusion of much formal grammar without being spoiled for its own ends. It is constant use and practice, under never-failing watch and correction, that makes good writers and speakers; the application of direct authority is the most efficient corrective. Grammar has its part to contribute, but rather in the higher than in the lower stages of the work. One must be a somewhat reflective user of language to amend even here and there a point by grammatical reasons; and no one ever changed from a bad speaker to a good one by applying the rules of grammar to what he said.''

The following thoughts gleaned from the above quotation are worthy of special note:

1. The leading object of the study of English grammar is not to teach the correct use of English.

2. Much formal grammar intruded into primary language spoils the language work.

3. It is constant use and practice, under never-failing watch and correction, that makes good writers and speakers.

4. The application of direct authority is the most efficient corrective.

5. No one ever changed from a bad speaker to a good one by applying the rules of grammar to what he said.

CHAPTER XIV.

THE SUBJECT MATTER OF GRAMMAR.

The Former View.—Not many years ago it was thought that grammar was a subject with so broad a subject-matter that it included almost any phase of language work. As such, grammar was said to be divided into *orthography, etymology, syntax* and *prosody.* And following up the same line of thought orthography was said to treat of *sounds, letters, syllables,* and *spelling.* Such a view of the subject-matter of grammar lacks definiteness. It is so general that it gives the teacher little or no help. A teacher who holds such a view of grammar can do almost anything with language and call it grammar work.

Seeing this trouble, thinkers on grammar began to analyze this general notion. As a result of this analysis and study they are now pretty generally agreed that the unit of grammar is the *sentence* rather than language as a whole. A little careful study will reveal the thought here.

The Better View.—There are three language units, the *word,* the *sentence,* and *discourse.* These are the three wholes of which all language is composed, and so are the three language units.

Some language subjects deal with the word as their unit. The subjects are thus called word studies. They are *orthography, orthoepy, etymology,* and *lexicology.* Orthography is that word study which treats of the correct form of the written or printed word. Orthoepy is that word study which treats of the correct pronunciation of words. Etymology is that word study which treats of the derivation of words. Lexicology is that word study which treats of the meaning of words.

There is but one subject which deals with the sentence as its language unit. This subject is *grammar.*

Some of the discourse studies deal with discourse as a finished product while some deal with it in the process of making. "Evangeline," "The Barefoot Boy," or any other selection in the reading books is discourse as a finished product. When one is speaking, or writing a letter or essay, he is making discourse, and it thus is discourse in the process of making.

Reading, literature and rhetoric as the science of discourse deal with discourse as their language unit, but with discourse as a finished product. Language lessons and composition deal with discourse as their language unit, too, but with discourse in the process of making.

The following diagram reveals the relation among the subjects of the language group:

- Language Units
  - The Word
    - Spelling.
    - Orthoepy.
    - Etymology.
    - Lexicology.
  - The Sentence — Grammar.
  - Discourse
    - As a Finished Product
      - Reading.
      - Literature.
      - Rhetoric as The Science of Discourse.
    - In the Process of Making
      - Language Lessons.
      - Composition.

It might seem at first thought that grammar deals with the word as its language unit, but such is not the case. It is true that words are studied in grammar, but never as isolated things. They are always studied as parts of the sentence and in relation to the sentence as a whole. An isolated word has no grammatical meaning, strictly speaking. It can be studied grammatically only when used in the sentence.

Purpose of Language.—What is the work which the word, the sentence and discourse have to do? That is to say, What is their purpose? One can help himself in the study of this question by investigating the birth of language. Such investigation shows that the instinct in humanity to communicate experience gave birth to language. When a human being has an experience he frequently wishes to arouse a similar experience in another human being. Now, there is no well known way to communicate an experience except by some physical medium, and language came into existence as this physical medium. Thus language was born of a felt-need

for some physical medium to communicate thought and feeling.

A *word* was born of a desire to communicate an idea. A *sentence* was born of a desire to communicate a thought. *Discourse* was born of a desire to communicate related thoughts.

It is the purpose of *everything* to realize the idea that created it and it naturally has no other purpose. Thus the whole purpose of language is *to communicate thought and feeling.*

The Sentence the Subject-Matter of Grammar.— From the study so far the conclusion is reached that *the sentence as an instrument for communicating thought is the subject-matter of grammar.* This is, in general, an accurate statement for the subject-matter of grammar, and is the view held at present by the best thinkers on this subject. However, there is further help in seeing *just* what is done when the sentence is *a medium for communicating thought and feeling* is studied in grammar. The sentence may be studied, first, as a *whole;* secondly, as to *its parts,* each point considered as to its *nature, definition, classification* and *relation* in grammar work. This is what studying the sentence as a medium for communicating thought and feeling means. Thus the following statements for the subject-matter of grammar are reached:

The subject-matter of grammar is the sentence as an instrument for communicating thought.

The subject-matter of grammar is the sentence as

a whole and as to its parts as to nature, definition, classification and relation.

The relation in which the facts in any subject are studied is the organizing principle of the subject. Thus in the organizing principle of grammar there are found four points. 1. Nature. 2. Definition. 3. Classification. 4. Relation.

Nature.—Nature means according to the way a thing is born. So to study the nature of the sentence, or any class of sentences, or any part, or class of parts is to study how it came to be.

Since all language is born of a desire to communicate thought and feeling, studying the nature of the various things in grammar means to seek in the thought back of the language form, the reason for this form. This, teaching from the thought side, is *a vital point in all grammar teaching.*

Definition.—The popular notion of definition is that it is some sort of formal statement, either oral or written, to be learned and remembered. But definition in the most fundamental view is a mental process, the mental process which lies back of the formal statement, definition as a product.

An examination of how the mind naturally forms a definition will reveal the nature of the process.

Let the thing to be defined be the triangle. The mind examines a particular triangle noting its attributes; then it examines a second triangle, noting its attributes; then a third, and so on. The mind compares these various particular triangles and selects out their

common attributes. It finds them as follows:

1. The triangle is a polygon.
2. It has three sides.
3. It has three angles.

The mind now makes a synthesis of these common truths of triangles in the form of a thought, which gives the following: *A triangle is a polygon having three sides and three angles.* This, it is evident, is a definition of the triangle, and the mind's process of arriving at this mental product is the mental process of definition.

From this the definition of definition is reached, as follows:

Definition is the mind's process of making a synthesis of the essential common truths of a class of objects in the form of a thought.

For instance, the mind examines several particular nouns in sentences, and sees the following truths of each one:

1. It is a substantive word.
2. It names the idea of an object.

The mind makes a synthesis of these truths as follows: *A noun is a substantive word which names the idea of an object.* But this defines the noun.

In making the synthesis of the common truths of a class of objects, the mind takes the following steps:

1. It thinks the name of the class to be defined.
2. It puts the class to be defined into the next larger known class.
3. It sets the class to be defined off from all other things in the known class.

For instance, in the definition of the sentence, *The sentence is that language unit which expresses a thought, "The sentence"* names the class to be defined; *"is that language unit"* puts the class to be defined into the class, *language* units, the next known class larger than the sentence; and *"which expresses a thought"* sets the sentence off from the other things of the class, the *word* and *discourse.*

What Is Defined.—The thing defined is always a class. When the mind defines the *adjective,* the definition is for the class, *adjective,* not for some particular adjective. When the mind defines a *prism,* the definition is for every *prism,* not for some particular prism.

Inclusive and Exclusive.—Definition must include all the particular objects of the class defined. For instance, the definition of a bird, *a bird is an animal that flies,* does not include all birds, for ostriches, and other birds do not fly. This is thus not a good definition. It is not *inclusive.* Again definitions must exclude all objects except those in the class defined. The above definition, for instance, is not good, because there are other animals than birds that fly. Bats, butterflies, and so on fly. The definition is not *exclusive.* Definitions, to be good, must be *inclusive* and *exclusive.*

Natural Way of Defining.—Naturally the mind in defining does the following:

1. The mind examines particular objects of the class to be defined.

2. The mind selects out the essential common attributes of these objects.

3. The mind makes a synthesis of these common attributes in the form of a thought by:

a. Thinking the name of the thing to be defined.

b. Putting the thing to be defined into the next larger known class.

c. Setting the thing to be defined off from all other things of that class.

Laws of Definition.—Thus to guide in making definitions the following laws may be formulated:

1. *Name the thing to be defined.*

2. *Put the thing to be defined into the next larger known class.*

3. *Set the thing to be defined off from all other things of that class.*

Errors in Definitions.—Errors in definitions are very common in almost all kinds of text-books. The most common are as follows:

1. They are in part or wholly *untruthful;* as, "A sentence is a thought expressed in words," and "The predicate of a sentence is that which is asserted of the subject."

2. They are not *helpful;* as, "A noun is the name of an object."

3. They are not *inclusive;* as, "The subject of a sentence names that of which something is thought."

4. They are not *exclusive;* as, "An adjective is a word which modifies a noun or pronoun."

Definition, Description and Synonym.—A clear distinction should be made between a *definition* and a *description;* also, between a *definition* and a *synonym.* A definition is a limiting process of thought and deals

with a class of objects as such. It selects just enough of the common attributes of a class of objects to enable the mind to limit the class; that is, think it definitely. Description deals with a particular object as such, not with a class. It seeks many more attributes than definition and is not so economical. A definition is not even a description of a class as has sometimes been said.

A synonym is a word which has the same signification or nearly the same, as some other word, and may be used interchangeably with it.

One who understands definition fully must differentiate it fully from description and from a synonym.

Importance to Teacher of Understanding Definition.—The teacher who well understands the mind's process of definition will thereby become self-helpful and self-directive in definition making. He will be able to free himself from the text-book, rise above it and criticise it. He will have confidence in his own ability and will depend upon the integrity of his own thought. He will thus become an independent and ready thinker. And his students will be led into these mental habits by his teaching.

Classification.—Classification is separating and uniting objects into groups upon the basis of their common truths.

The mind classifies in order to help itself to save time and energy in thinking the world of objects. The mind would be greatly hindered in thinking if it were unable to classify. It would make slow progress in getting knowledge, if it could make any.

If there are 100,000 nouns in the English language, and the common truths of nouns are (1) they are words; (2) they express objects; (3) they name their objects, to know their essential nature without thinking them as a class, the mind must think 300,000 things. But if the mind thinks them as a class, it must first think the three things true of all nouns, then think that each one of the particular nouns is a noun, making in all 100,003 things. Therefore, by thinking the noun as a class the mind has saved the time and energy required to think 199,997 things, a great saving.

The common truth or truths according to which objects are classified is the *basis of classification.*

The teacher in asking for classes should, as a rule, give the basis of classification. Otherwise his question is likely to be indefinite. To ask, What are the classes of phrases, or What are the classes of verbs? is too indefinite to be most helpful. Many mistakes are made in teaching grammar on this point.

Again, clear thinking demands that one stick to his basis in making classes. To classify the people in an audience as Americans, Baptists, Methodists, males, Hoosiers, Buckeyes, brunettes, Democrats and Masons is not straight thinking. The basis of classification is changed too often. The error indicated here is one frequently made in teaching grammar, too. It is one also made by authors of text-books on grammar.

Relation.—Relation is the connection the mind makes between ideas of things by uniting them in the same mental act. Thus in grammar the mind relates the

noun and pronoun; the adjective and adverb; the relative pronoun and the conjunctive adverb; the conjunction and the relative pronoun, and so on.

The mind most usually relates the ideas of things because of their likeness and difference, though it is not clear that it always does so.

Comparison and *contrast,* relating things because of their likeness and difference, is a most helpful aspect of relation to teach in grammar. Thus after the noun and pronoun have been pretty carefully studied, for instance, nothing is more helpful and stimulating than to compare and contrast them.

One caution is to be observed, namely, that comparison and contrast must not be unsystematic and unorganized. If so, it is likely in a short time to degenerate into worthless surface work, only a few of the obtrusive likenesses and differences being seen.

In order to compare and contrast two grammatical terms well a systematic plan must be followed. Thought on this point shows that two grammatical terms may be alike and different as follows:

1. As to essential ideas.
2. As to grammatical use in the sentence.
3. As to modifiers they may take.

Some grammatical terms may have other points of likeness and difference, but these are the essential ones. These are all evident as to meaning unless it be the first, the *essential ideas* of a thing.

The essential ideas of a sentence are (1) it is a language unit; (2) it expresses a thought. These points

put together make the definition of the sentence. The essential ideas of a triangle are (1) it is a polygon; (2) it has just three sides; (3) it has just three angles. These points put together make the definition of the triangle. Thus it appears that *the essential ideas of a thing are those points which make the definition of the thing.*

Comparison of Noun and Pronoun.—By way of illustration in this connection, the noun and pronoun may be compared with profit.

As to essential ideas.

Likeness.

1. They both are substantive words.

Difference.

1. The noun names the idea of an object, but the pronoun does not name the idea of an object.

As to grammatical use in sentence.

Likeness.

1. They both may be used as the subject.
2. They both may be used as the predicate.
3. They both may be used as direct object.
4. They both may be used as indirect object.
5. They both may be used as a possessive.
6. They both may be used as an appositive.
7. They both may be used adverbially.

8. They both may be used absolutely.
9. They both may be used independently.
10. They both may be used as object of preposition.

Difference.

1. None.

As to modifiers they may take.

Likeness.

1. They both may take the adjective modifier.
2. They both may take the appositive modifier.

Difference.

1. The noun may take the possessive modifier, but the pronoun may not.

It is apparent that no lesson on the noun and pronoun will acquaint the student with the exact status of his knowledge of them better than such a one as this. It also makes the very best kind of review.

CHAPTER XV.

THE INDUCTIVE METHOD IN GRAMMAR.

Nature of Inductive Method.—The inductive method was discussed to some extent in the first chapter of these studies under the head of the Laboratory method. It is a procedure in which the learner is led to *observe, investigate* and *think* for himself. It is opposed to taking things on mere authority in all cases where the learner may be led to investigate, and do original thinking. It is directly opposed to what is called the text-book method in teaching. By the inductive method the student is led to deal with the actual material of study rather than with what some one has said about it. In studying botany by the inductive method, the learner deals with plants; in studying zoology, with animals; in studying chemistry, with chemicals; in studying grammar, with *sentences* and *parts of sentences.*

As the inductive method, it gets its name from the mental process of inductive reasoning, or induction. Induction, also, studied in a previous chapter, is the mind's process in going from the examination of particular objects to some general truth about these objects. It begins with the study of particular objects and ends by reaching a judgment whose subject is an idea of a

class and whose predicate is an idea of some attribute or truth asserted of the class. It goes from the particular to the general.

Illustration.—Five nouns have been examined, and each has been found to be *a substantive word which names the idea of an object.* So the mind reasons this way:

These words are all nouns.
These words are all substantive words which name ideas of objects.
Therefore, nouns are substantive words which name the ideas of objects.

It is to be noted here that the mind starts by studying particulars and from this study reaches a truth about the class, *nouns;* that is, a general truth. This truth is, that they are all *substantive words which name the ideas of objects.*

The Inductive Method and Definition.—Definition in several of its aspects was studied in the last chapter, and holding in mind what was learned there, the study may profitably be pushed further here in connection with the inductive method. Naturally the mind always employs the inductive method in making definitions.

Illustration.—The mind starts out to make a definition of the sentence, and naturally studies sentences, one, two, three, four or more, seeing that each of them is a language unit which expresses a thought. It then thinks the definition, *A sentence is a language unit which expresses a thought.* A study of this process shows that there are here to be found six instances of

inductive reasoning, the mind thus making extensive use of the inductive method.

When the mind examines the first sentence it reasons as follows: This is a sentence; this is a language unit which expresses a thought; therefore, the sentence (so far as seen) is a language unit which expresses a thought.

This process is repeated with each particular case, the mind becoming firmer in its belief all the time that it was right at first. Thus the whole process of thus defining the sentence is *predominantly* one of induction. There is deduction involved, but it is subordinate to the induction.

There must have been a time when no one knew grammatical definitions, and the only conceivable way that they could have been originally made was from the study of particular cases of the thing defined. But making definitions from the study of particular things is the employment of the *inductive method.*

Again, if all text-books on grammar should be simultaneously destroyed and all persons should forget all grammatical definitions, it would be only a short time before definitions would appear again. But how would minds form them? By studying particular cases and making definitions from such study. There is no other way. But this again is by the use of the *inductive method.*

The Mind's Natural Way of Defining.—From the study of the inductive method, definition, conception and inductive reasoning, but one conclusion concerning

how the mind naturally defines is possible; namely, *the mind naturally employs the inductive method in defining.*

This may be systematized again by saying the mind's natural way of getting definitions is as follows:

1. The mind studies particular objects of the class to be defined.

2. The mind selects out the common truths of the particular objects.

3. The mind makes a synthesis of these common truths in the form of a thought.

Objections.—The one and only legitimate objection which can be urged against leading students to form their own definitions in this way from the study of particular cases is that in some subjects the particular cases can not be had for first-hand study. But this objection does not hold for grammar, for the particulars to be studied are sentences and parts of sentences. This material may be always present.

There is much ado made these times about teaching chemistry, botany, zoology, geology, etc., inductively, and a teacher is regarded far behind the times who does not teach them so. But of all the subjects that may be taught inductively no other one is so easily so taught as grammar; and yet, grammar is actually so taught less than any other one. Such a condition is entirely unwarranted.

The Correct Way To Teach Definition.—If the mind's natural way of making definitions is a guide as to the correct method of teaching definitions, all defini-

tions in grammar properly taught must be taught by the inductive method. That is to say, particular cases of the thing to be studied are to be placed before the student. He is to be led by questions to discover *for himself* the truths common to the particular cases, and asked to state them as essential ideas. And as a last step in the process he is to be asked to make a synthesis of these common truths in the form of a thought; that is, he is asked to make the definition.

From the teacher's point of view the steps in teaching definitions in grammar are as follows:

1. Place before the learner a list of good sentences, and underscore, if necessary, the terms which are especially to be studied.

2. Ask a list of good questions; that is, a list of questions which will lead the learner to discover for himself, so far as possible, the essential common truths of the particulars to be studied.

3. Ask the learner to state these common truths as essential ideas.

4. Ask the learner to make the definition.

Illustration.—Subject of the lesson is the *noun and pronoun.* The students have previously studied the classes of words on the basis of what they express and so know well the meaning of *substantive* word. They also know what it means to *name* a thing.

NOUN AND PRONOUN.

1. That *rose* is very beautiful.
2. The *oriole* builds a hanging nest.

3. One should cultivate a *love* for *beauty*.
4. *John* is an industrious *boy*.
5. *William* was rewarded for his *industry*.
6. *He* is known to be honest.
7. *I* gave *it* to *him*.

What do the italicized words in the above sentences express? On the basis of what they express what kind of words are they? How do those in the first five sentences differ from those in sentences six and seven? Those in the first five sentences are *nouns;* those in sentences six and seven are *pronouns*. How does the noun differ from the pronoun?

Give the essential ideas of the noun; also, of the pronoun.

Define the noun. Define the pronoun.

Answers: The italicized words express ideas of objects. They are substantive words. Those in the first five sentences name their objects, while those in sentences six and seven do not. The noun names an object, while the pronoun does not. The essential ideas of the noun are: 1. The noun is a substantive word. 2. The noun names its object. The essential ideas of the pronoun are: 1. The pronoun is a substantive word. 2. It does not name its object. *The noun is a substantive word which names its object. The pronoun is a substantive word which does not name its object.*

Comparison of the Two Ways.—Definition is often taught in grammar by assigning as a lessons formal statements of definitions to be learned from a text-book and committed to memory. This way consists simply

in learning what some one has worked out on the subject. The learner does not at all live the experience which leads to the definition.

This kind of work makes the learner dependent and helpless, and gives him an undue respect for the textbook. He grows into thinking that the subject is to be found between the lids of the book. He gets into an attitude of mind which causes him to accept it because the book says so. This way of learning definitions lacks *direct* interest, is unnatural, and often is nothing more than the verbal memory of meaningless terms. It is always liable to degenerate into this kind of work, and, in fact, it can scarcely be avoided. It cultivates memory, the kind of memory which breaks down the ability to think accurately and readily. It produces the appearance of understanding without the reality.

Herbert Spencer says on this point: "To give the net product of inquiry, without the inquiry that leads to it, is found to be both enervating and inefficient. General truths to be of due and permanent use, must be earned. 'Easy come easy go' is a saying as applicable to knowledge as to wealth. While rules (definitions), lying isolated in the mind—not joined to its other contents as outgrowths from them—are continually forgotten, the principles which those rules express piece-meal, become, when once reached by the understanding, enduring possessions. While the rule-taught youth is at sea when beyond his rules, the youth instructed in principles solves a new case as readily as an old one. Between a mind of rules and a mind of prin-

ciples, there exists a difference such as that between a confused heap of materials, and the same materials organized into a complete whole, with all its parts bound together.''

Advantages of the Inductive Method.—The advantages of the inductive method in grammar are many. The following are some of them:

1. It is the mind's natural way of learning grammar.
2. It makes students independent and self-helpful.
3. It gives students the habit of free inquiry and free investigation.
4. It establishes a critical habit of mind.
5. It makes grammar a subject full of direct interest.
6. It makes grammar a subject unexcelled by any in giving mental discipline in (1) accurate observation, (2) comparison and contrast, (3) abstraction, (4) generalization, (5) inductive reasoning, (6) identification, and (7) the kind of memory that does not break down the ability to think accurately and readily.

Dr. Arnold Tompkins says the following of definition taught by the inductive method: ''It (definition) is a process of thinking which brings into unity the individual and the universal—the problem of all thought, and which brings the learner into unity with the world of thought, the end of all learning. This is its primary educational value.

The power to discern unity in the midst of diversity; to detect essential likenesses amidst engrossing and

non-essential differences; to find the enduring under the mask of obtruding, accidental and superficial attributes, is a fundamental characteristic of every well-trained mind. To define is not simply to unify individuals; but, in unifying, to find their essential nature. The common nature in which they are unified is the essential nature of each individual. Hence the habit of thinking in the form of definition is the habit of thinking the true nature of things; which is the primary function of mind.

This unifying act of mind is complex; and has a richer significance in training than at first appears. It requires accurate, thorough, and methodical observation; precise discrimination through comparison and contrast; abstraction of that which abides after differences have been canceled; and generalization, by holding in mind the difference of individuals while binding them into the unity of their common nature. So that while training to correct habits of definition, the teacher is carrying forward a large number of related habits. Too much can not be said, therefore, by way of urging the teacher to train the student in the power of logical definition, since it is a form of activity by which he comes into unity with the world of thought.

Definitions are usually treated as mere formal statements to be recited and lodged away in the memory, rather than thought processes of defining in fundamental forms of activity.''

''To reap the best results, the formal statement of a definition should not be made until the student has

had a full experience of all the subordinate processes on which the definition is based. In some cases, days, or even weeks, should be spent in observing, comparing and contrasting, abstracting, and generalizing, before any effort is made to formulate a definition. The formal definition of an infinitive is the last step in the process and not the first, as usually given. A definition made in this way, when asked for in reproduction, will not be remembered as a form of words; but the entire experience in making the definition will, in brief, be repeated. Definitions made in this way can not be forgotten; or, if forgotten, may be reconstructed on a moment's notice."

CHAPTER XVI.

BASIS IN GRAMMAR.

Basis for the Sentence.—The starting point proper in teaching grammar is the sentence, and the first work to be done with the sentence is to lead the learner to study its *nature*. To study the nature of the sentence is to study how it was born, that is, how it came to be. We know that the sentence was born of a desire to communicate a thought. So in order to understand the *nature* of the sentence the nature of the thought must be understood. The nature of the thought can not be understood, however, without knowing what an idea is, and an idea can not be well understood without a knowledge of its symbol, *the word*. Ideas are, in general, the mind's activities appropriate to *objects, attributes* and *relations*. These three, *objects, attributes,* and *relations* make up the universe. There is nothing which is not an object or an attribute or a relation. Ideas thus originate in the mind from the consideration of objects, attributes and relations. Thus to undertsand well an idea, an object, an attribute, and a relation must be understood. Therefore, to build up the basis for teaching the nature of the sentence well, *objects, attributes, relations, ideas, words,* and *thoughts* must be understood.

The following outline shows the adequate basis for teaching the sentence:

I. The object.
- 1^1. Classes.
  - 1^2. Material.
  - 2^2. Immaterial.
- 2^1. Attributes.
  - 1^2. Classes.
    - 1^3. Quality.
    - 2^3. Condition.
    - 3^3. Action.
- 3^1. Relations.

II. Idea.
- 1^1. Symbol.
  - 2^2. Word.
    - 1^3. Classes.
      - 1^4. Substantive.
      - 2^4. Attributive.
      - 3^4. Relational.
      - 4^4. Feeling.
      - 5^4. Form.

III. Thought.
- 1^1. Elements of.
  - 1^2. Subject.
  - 2^2. Copula.
  - 3^2. Predicate.
- 2^1. Symbol of.
  - 1^2. Sentence.

Principles Underlying Basis.—Basis, as has been said before, means the points of knowledge the child already has upon which one can build in teaching any new point or points of knowledge. The principles of mind upon which basis is founded are as follows:

1. *The mind naturally goes to the unknown from the nearest related known.*

2. *The mind from its organic nature best grasps, and retains that which is well organized.*

The mind can go no other way in learning than from the *known* to the *unknown,* but it makes much difference whether it attempts to go from the nearest related known to the unknown, or whether it attempts to go to the unknown from some remotely related known. It also makes much difference whether there is any closely related known from which the mind can go to the unknown.

Illustration.—The mind in defining the adjective does not naturally think that the adjective is a *thing,* though it is the truth; but it thinks the adjective is an attributive word, a class of known things, and then narrows it down further. A *thing* is known, but is not as closely related to the adjective as an *attributive word,* another known thing.

It is well known that those things which are taught in a fragmentary, unorganized, unsystematic manner are difficult to grasp and difficult to remember, while work well organized is much more easily grasped and much more easily remembered. This is true because

only in that which is well organized are the relations traced out and emphasized.

The second principle, as well as the first, underlying basis makes it imperative that in teaching any subject it be progressively developed, each step taken forming a basis for the next step in the subject. Geometry well illustrates this point, but it is equally true in developing the subject of grammar.

Violation of Basis.—There are many violations of basis in grammar as treated in text-books on the subject and as usually taught. These occur in two ways. First, a subject is treated for which the basis has not been given, or an attempt is made to teach a lesson for which the basis has not been worked out.

Secondly, subjects are treated and lessons taught in such a way that use is not made of the basis the learner has . Both are very bad and detract from habits of careful thinking.

Illustration.—A text-book in treating the grammatical properties of a noun gives the following statement for the objective case: "The objective case is the use of a noun or pronoun as the object of a transitive verb in the active voice or of its participles." The transitive verb and active voice had not been worked out before and participles had had mere mention.

Again, the definition for the preposition, "A preposition is a word which shows the relation between its object and some other word," violates basis. The meaning of the "object of a preposition" is not worked

out in the text up to this place, nor is it worked out afterward, for that matter.

A teacher often attempts to teach case without having carefully worked out the many ways a substantive is used in the sentence. Or he attempts to teach the nature of the sentence without having carefully worked out the meaning of the thought.

The mistake in each case is one of violation of basis.

Further Illustration.—The definition for a relative pronoun, "A relative pronoun is a word used to represent a preceding word or expression called its antecedent to which it joins a modifying clause," is a violation of basis in that it does not use what the learner has already acquired. The pupil has already learned what a pronoun is, or he has no occasion to study the relative pronoun, and this knowledge should be used as a basis in defining the relative pronoun.

The mind knows what a pronoun is, and to define the relative pronoun has only to set it off from other pronouns to define it according to the laws of definition. This it is able to do as soon as it sees that the relative pronoun has a connective use in the sentence.

The natural definition for the relative pronoun is as follows: *A relative pronoun is a pronoun which has a connective use in the sentence.* The learner's knowledge of a pronoun is thus used as a basis for learning the relative pronoun.

Work in Harmony with Basis.—To start in grammar teaching and work all the time in harmony with

basis, the work must proceed somewhat as follows:

Objects, attributes, and relations must be taught as basis for teaching the idea. Substantive, attributive and relational ideas must be taught as a basis for teaching the word, and the classes of the word; also, as a basis for teaching the thought. The thought and its elements must be taught as a basis for teaching the sentence and its elements. The sentence and its elements must be taught as a basis for teaching the classes of sentences, and for teaching the various parts of the sentence. And so on through the whole subject.

The advantages of working in harmony with basis are those which accrue from the *natural* and *progressive unfolding* of the subject. Some of them are as follows: 1. Economy of time and energy. 2. Right habits of thinking. 3. Right methods of study. 4. Interest in the subject. 5. The cultivation of the right kind of memory, the kind that does not break down the ability to think skillfully, but aids in accurate thinking.

CHAPTER XVII.

STEPS IN GRAMMAR.

Meaning of Steps.—Steps in any subject mean the various more or less definite advances the mind takes in mastering that subject. There are in the subject of grammar many distinct points of knowledge to be mastered, and the *mentality,* or *mental activity,* employed in mastering them constitutes the steps in grammar. Thus the mental activity corresponding to the noun, the mental activity corresponding to the pronoun, and the mental activity corresponding to the adverb are steps in grammar. Such large steps as these are of course analyzable into smaller steps. But in any event the separate advances of the mind are the steps in grammar.

Order of Steps.—The question of most importance in grammar is the order of the steps. What shall be taught first, what shall be taught secondly, thirdly, and so on, is the important question for solution concerning steps. Here is a large amount of grammatical material to be taught, and it is possible to begin at various places, and move forward in various ways. What shall be the order in which these various points of grammatical material shall be taught? Or does it make any difference what order the various truths of the subject are taught in?

The examination of text-books will not solve this problem, for no two books are to be found which entirely agree in their order of presenting grammar work.

However, text-books on grammar in general follow two plans. First, in most of the older texts and in some of the newer ones, the parts of speech together with their grammatical properties constitute the first part of the book. In these same books, the second part is made up of an exposition of the sentence, taken up as a whole, its elements, both essential and modifying, and syntax.

Secondly, books that follow the other plan just reverse this order. The sentence as a whole, its elements, both essential and modifying, etc., constitute, according to this plan the first part of the book, the second part consisting of the exposition of the parts of speech and their grammatical properties.

Help on the Problem.—In the search for a correct solution to the problem of the right order of teaching the various subjects in grammar help may be had in observing the human mind and its natural mode of acting. As in the solution of every educational problem, so in the solution of this one the ultimate source of guidance is found in a knowledge of how the mind naturally works.

A little reflection reveals to us that the mind naturally grasps any object as a whole, first, in order to comprehend it in its oneness, in general; next the mind proceeds to break the object up into its larger parts, and to grasp them as wholes, and in relation to the whole object; next the parts are broken up into smaller parts,

and it may be that these in turn are analyzed into smaller parts; and thus the mind goes on, and on. This the mind *naturally* does whether its activity be appropriate to a tree, a sewing machine, a lily, a poem, a problem in arithmetic, an original solution in geometry, or a *sentence.* If any one is not certain of this point, he has only to watch his own natural mental activity in taking up any new object of study, to prove its truth satisfactorily.

The Mind's Attitude Toward the Sentence.—From the foregoing study, it is evident that the mind naturally grasps the sentence as a whole, first; then it proceeds to break it up into its largest parts; then into the next smaller and so on through the subject.

Thus if we can determine in our study what the parts of grammar are in the order indicated, we will have the mind's natural order of taking up the subject of grammar. And this can be determined by studying what the mind can do with the sentence as a whole in grammar.

First, it can study its nature; secondly, it can define it; it can classify sentences on two bases, *form* and *meaning.* This from the meaning basis gives *declarative, interrogative, imperative* and *exclamatory* sentences; and from the form basis, *simple, complex* and *compound* sentences. These classes can be studied as to *nature, definition, classification,* and *relation.*

After these general ideas are viewed from the thought side, the mind naturally seeks to verify the conclusions reached. This it does by exercises in iden-

tifying particulars. For instance, if the mind studies the simple sentence and reaches the general idea, that *a simple sentence is a sentence which expresses a single thought,* it looks then for examples of simple sentences to justify its conclusions.

After thus dealing with the sentence as a whole, it would next be broken up into its largest parts. These, the largest parts of the sentence, are its essential elements, *the subject, the predicate,* and *the copula.*

The nature, definition, classes, and relation of these one to another, the mind would trace out. These general ideas having been worked out from the thought side by the inductive method, the mind naturally would seek again to verify its conclusions by exercises in identification.

In the next general movement the essential elements of the sentence would be broken up into the following: 1. On the meaning side, into principal and modifying elements. 2. On the form side, into words, phrases and clauses. Modifying elements would be broken up into: 1. Substantive modifiers. 2. Attributive modifiers, and these into their subclasses.

The next general movement in the breaking up process would give the parts of speech, and these would come in something like the following order: 1. Noun. 2. Pronoun. 3. Verb. 4. Adjective. 5. Adverb. 6. Preposition. 7. Conjunction. 8. Interjection.

This is, in general, the order in which the mind would naturally take up the subject of grammar. There may be places where minor variations in the order

should be made depending upon the circumstances under which the subject is taught.

As a rule, the mind's natural way of doing any school work should be sought out and followed as nearly as possible, since it is not only rational, but most economical. So any great departure from this general order is to be avoided.

The following outline will indicate in a general way a good order of teaching the subject, grammar:

I. The object.
  1^1. Classes.
    1^2. Material.
    2^2. Immaterial.
  2^1. Attributes.
    1^2. Classes.
      1^3. Quality.
      2^3. Condition.
      3^3. Action.
  3^1. Relations.

II. Idea.
  1^1. Classes.
    1^2. Substantive.
    2^2. Attributive.
    3^2. Relational.
  2^1. Symbol of.
    1^2. Word.
      1^3. Classes on basis of what they express.
        1^4. Substantive.
        2^4. Attributive.
        3^4. Relational.

4⁴. Feeling.
5⁴. Form.

III. Thought.
1¹. Elements.
1². Subject.
2². Predicate.
3². Copula.
2¹. Symbol of.

Down to this point in the outline the work is entirely basis for teaching the sentence. This work on basis is important and should be carefully worked out. One can not rightly presume that the average student has adequate basis for beginning the grammar work proper.

1². Sentence.
1³. Nature of.
2³. Definition of.
1⁴. Nature of definition in general.
3³. Classes on basis of meaning.
1⁴. Declarative.
2⁴. Imperative.
3⁴. Interrogative.
4⁴. Exclamatory.
4³. Classes on basis of form of thought expressed.
1⁴. Simple.
2⁴. Complex.
3⁴. Compound.

Down to this point in the outline the mind is work-

ing with the sentence as a whole. It has not yet begun to study the sentence in its parts.

5^3. Elements of.
1^4. Essential.
1^5. Subject.
1^6. Classes on basis of form.
1^7. Word.
2^7. Phrase.
3^7. Clause.
2^5. Predicate.
1^6. Classes on basis of form.
1^7. Word.
2^7. Phrase.
3^7. Clause.
2^6. Classes on basis of what they express.
1^7. Substantive.
2^7. Attributive.
3^5. Copula.
2^4. Modifying.
1^5. Classes on basis of what they express.
1^6. Substantive.
1^7. Objective.
2^7. Substantive-adverbial.
3^7. Appositive.
4^7. Possessive.
2^6. Attributive.
1^7. Adjective.
2^7. Adverbial.

Down to this point in the outline the mind has been dealing with the elements of the sentence, since it began upon the parts of the sentence. The next break up gives the parts of speech, which follow:

IV. Parts of speech.
  1^1. Noun.
    1^2. Classes.
      1^3. Proper.
      2^3. Common.
        1^4. Classes.
          1^5. Class.
          2^5. Abstract.
          3^5. Mass.
    2^2. Grammatical properties.
      1^3. Gender.
        1^4. Classes.
          1^5. Masculine.
          2^5. Feminine.
          3^5. Common.
          4^5. Neuter.
      2^3. Person.
        1^4. Classes.
          1^5. First.
          2^5. Second.
          3^5. Third.
      3^3. Number.
        1^4. Classes.
          1^5. Singular.
          2^5. Plural.
      4^3. Case.

1^4. Classes.
1^5. Nominative.
2^5. Objective.
3^5. Possessive.

2^1. Pronoun.
1^2. Classes.
1^3. Personal.
2^3. Relative.
3^3. Interrogative.
2^2. Grammatical properties.
1^3. Same as noun.
3^2. Inflection.
1^3. Declension.

3^1. Verb.
1^2. Classes on basis of what they express.
1^3. Pure.
2^3. Attributive.
1^4. Classes.
1^5. Transitive.
2^5. Intransitive.
2^2. Classes on basis of form.
1^3. Regular.
2^3. Irregular.
3^2. Classes on basis of rank.
1^3. Principal.
2^3. Auxiliary.
4^2. Classes on basis of number of parts.
1^3. Complete.
2^3. Defective.
3^3. Redundant.

5^2. Classes on the basis of whether it asserts.
  1^3. Finite.
  2^3. Infinite.
    1^4. Classes.
      1^5. Infinitive.
        1^6. Nature.
        2^6. Classes.
        3^6. Use in sentence.
      2^5. Participle.
        1^6. Nature.
        2^6. Classes.
        3^5. Use in sentence.
6^2. Grammatical properties.
  1^3. Voice.
    1^4. Classes.
      1^5. Active.
      2^5. Passive.
  2^3. Mode.
    1^4. Classes on basis of meaning.
      1^5. Indicative.
      2^5. Subjunctive.
      3^5. Potential.
      4^5. Imperative.
  3^3. Tense.
    1^4. Classes.
      1^5. Absolute.
        1^6. Present.
        2^6. Past.
        3^6. Future.
      2^5. Relative.

1^{6}. Present perfect.
2^{6}. Past perfect.
3^{6}. Future perfect.

7^{2}. Inflection of.
1^{3}. Conjugation.

4^{1}. Adjective.

1^{2}. Classes on the basis of the way they affect the meaning of the substantive.
1^{3}. Descriptive.
2^{3}. Limiting.
3^{3}. Limiting-descriptive.

2^{2}. Classes on basis of non-attributive use.
1^{3}. Interrogative.
2^{3}. Relative.

3^{2}. Inflection.
1^{3}. Comparison.

5^{1}. Adverb.

1^{2}. Classes on basis of non-attributive use.
1^{3}. Interrogative.
2^{3}. Conjunctive.

2^{2}. Inflection.
1^{3}. Comparison.

6^{1}. Preposition.

7^{1}. Conjunction.

1^{2}. Classes on the basis of kind of relation expressed.
1^{3}. Coordinate.
2^{3}. Subordinate.

8^{1}. Interjection.

This outline is not exhaustive at all. It is merely suggestive, and so can be followed by any teacher without detracting from the teacher's individuality. At nearly all places much material must be filled in, in actual grammar teaching. Whenever the general ideas are worked out, there must be an abundance of work given in identification to the end of fixing in the mind of the learner these general ideas. For instance, if the definition for the subject, copula, and predicate of the sentence have been worked out, the pupils should have an abundance of practice in picking out subjects, predicates and copulas in many various sentences. They should give their reasons for making these identifications, too. This is the natural procedure of the mind after having formed general ideas.

CHAPTER XVIII.

ILLUSTRATIONS.

Purpose.—It is the purpose of these illustrations in grammar lessons to show how the subject of grammar may be taught inductively; that is, to show how the learner may be led to work out the subject for himself in a way perfectly natural to him.

The lessons illustrated will in general follow the outline given in the preceding chapter.

THE OBJECT.

1. The *robin* is a friendly bird.
2. *Longfellow* had good ideas of life.
3. The *sea* is the home of many curious *things*.
4. *Water* is composed of two gases.
5. The *maple* is a beautiful *tree*.
6. *Love* is the mainspring of all human activity.
7. The student was rewarded for his *industry*.
8. *Virtue* will bring its reward.
9. Whittier loved *truth* and *goodness*.
10. *Hate* and *anger* are not necessarily bad.

Each of the italicized words in the above sentences expresses an idea of an *object*.

What does one's mind do when he looks at each word, first? What may one's mind do secondly? What is a first truth of each of the objects suggested by the italicized words? What is a second truth?

Each of these truths is called an *essential idea* of an object.

What are the essential ideas of an object? Define an object. What is the connection between the essential ideas of an object and its definition? What is meant by the essential ideas of anything?

How do the objects expressed by the italicized words in sentences one, two, three, four and five differ from the objects expressed by the italicized words in sentences six, seven, eight, nine and ten?

Those expressed in the first five are called *material objects;* those in the last five, *immaterial objects.*

What are the essential ideas of a material object; also, of an immaterial object? Define each.

Answers to Above Questions.—When he looks at each word something comes into his mind. One's mind may think something of this thing. It is a thing. The mind may think about it. The essential ideas of an object are: 1. It is a thing. 2. The mind may think about it. *An object is a thing about which the mind may think.* The essential ideas of an object are to the definition as the parts of anything to the whole. The essential ideas of anything are just those separate points of which the definition is made.

Those expressed in sentences one, two, three, four and five occupy space, while those expressed in sentences six, seven, eight, nine and ten do not.

The essential ideas of a material object are: 1. It is an object. 2. It occupies space. The essential ideas of of an immaterial object are: 1. It is an object. 2. It

does not occupy space. *A material object is an object which occupies space. An immaterial object is an object which does not occupy space.*

The sentences and questions constitute the assignment for the lesson and are to be given to the students to study before going to the recitation. The answers are what would, in substance, be worked out in the recitation. Supplementary oral questions would have to be asked in the class on many of the points, no doubt. But the learner is ultimately to be led to make the answers, in substance, indicated.

The next lesson should be one as follows:

1. Fix in mind all the points we have had on the object and its classes.

2. Point out the words in the following sentences which express objects, and tell whether the objects are material or immaterial:

1. The pansy is a hardy flower.
2. The blossom of the apple is much like a rose.
3. Indiana has only three native red-birds.
4. Hope builds a bridge across the gulf of death.
5. The oriole builds a hanging nest.
6. Truth, crushed to the earth, will rise again.
7. Life should be full of earnest work.
8. Hope springs eternal in the human breast.
9. Emerson calls the bumble-bee an animated torrid zone.
10. Beautiful days bring hope and cheer.
11. Flowers brighten and bless mankind.
12. A free people must be educated.
13. A dainty plant is the ivy green.
14. The famous Alexandrian library was burned by

the Mohammedans.

15. The loss of the library at Alexandria was a great misfortune to mankind.

16. Indiana has more than sixteen thousand teachers in her schools.

17. I am he of whom you spoke.

18. Life is lord over death.

19. The orchard is the home of many kinds of life.

20. Man is the most progressive animal.

ATTRIBUTES.

1. *Beautiful* days are *pleasant.*
2. Gold is *yellow.*
3. Ice is *cold.*
4. The oak is a *stately* tree.
5. The stove is *hot* at present.
6. The road is *dusty* to-day.
7. She gave him a *wilted* rose.
8. The happy children are *singing.*
9. The *running* water babbles sweetly.
10. I saw a meteor *shooting* across the sky.

The italicized words in the above sentences express *attributes.*

To what does each attribute belong? What does it do for its object? See the dictionary and give another term for attribute. What is a first truth of an attribute; a second?

Give the essential ideas of an attribute. Define an attribute.

What do the attributes expressed in sentences, one, two, three and four make prominent in their objects? What do those expressed in sentences five, six and seven make prominent in their objects? What do those ex-

pressed in sentences eight, nine and ten make prominent in their objects?

On the basis of what they make prominent in their objects how many classes of attributes in the above sentences? Suggest names for them. Give the essential ideas of each class. Define each class.

Answers to the Above Questions.—Each attribute belongs to an object. It helps the mind in knowing the object. Mark, and characteristic, are other terms for an attribute. A first truth of an attribute is that it is a characteristic of an object; a second one, it helps the mind in knowing the object.

The essential ideas of an attribute are: 1. It is a characteristic of an object. 2. It helps the mind in knowing the object. *An attribute is a characteristic of an object which helps the mind in knowing the object.*

Those attributes expressed in sentences one, two, three and four make prominent the *quality* of the object. Those, in five, six, and seven, the condition of the object. Those, in eight, nine and ten, the changes of the object.

On the basis of what they make prominent in their objects there are three classes of attributes expressed in the above sentences. Attributes of *quality,* attributes of *condition,* attributes of *action.*

The essential ideas of an attribute of quality are:

1. It is an attribute. 2. It makes prominent a quality of an object. The essential ideas of an attribute of condition are: 1. It is an attribute. 2. It makes prominent a condition of an object. The essential ideas

of an attribute of action are: 1. It is an attribute. 2. It makes prominent the changes of the object.

An attribute of quality is an attribute which makes prominent a quality of an object. An attribute of condition is an attribute which makes prominent the condition of an object. An attribute of action is an attribute which makes prominent the changes of an object.

In this lesson, like the one on the object, and like several that will follow, the sentences and the questions constitute the assignment. The answers are those which in substance would be worked out in the discussion in the recitation.

The next lesson should be as follows: Pick out the words which express attributes in the following sentences and tell what kind of attributes they are:

1. Beautiful flowers are blooming in the pleasant grove.
2. A bad beginning is likely to make a bad ending.
3. The cheerful lad trudged along the dusty road.
4. That dilapidated old wooden building has fallen.
5. The genial summer days have come.
6. The crocus blooms very early.
7. The running brook babbles softly.
8. Six feet are one fathom.
9. The bad deeds of evil men sometimes result in some good.
10. The verdant lawn, the shady grove, the variegated landscape, the boundless ocean, and the starry firmament are beautiful and magnificent objects.

RELATION.

1. The house *on* the hill is a church.
2. Sponges *are* animals.

3. The beautiful flower *is* a rose.
4. Henry *and* Edward are *worthy* boys.
5. He sprang *across* the brook.
6. John studied *with* James.
7. Art is long *and* time is fleeting.
8. Many went *but* few returned.
9. William *or* Edward will go.
10. The bird flew *through* the window.

The italicized words in the above sentences express relations.

What do "on," "are," "is," "and," "across," "with" and so on do in the above sentences? How does the mind make connection between the ideas expressed by *house* and *hill, sponges* and *animals, flower* and *rose, Henry* and *Edward,* etc? What is a first truth of a relation; a second truth? What are the essential ideas of a relation? Define a relation.

Answers to the Above Questions.—They express connections between ideas. The mind makes these connections by uniting the ideas as parts of the same activity. It is a connection between things; the mind makes it by making the things connected parts of one mental activity.

The essential ideas of a relation are: 1. It is a connection between things. 2. The mind makes it by uniting things as parts of one activity.

Relation is the connection the mind makes between things by uniting them as parts of one activity.

EXERCISE.

Point out the words which express relation in the

following sentences, and tell what they express relation between:

1. Time and tide wait for no man.
2. I come from the haunts of the coot and hern.
3. The robin and the wren have flown
   And from the shrub the jay.
4. John or James or I will go with you.
5. That brave and fearless fireman has rushed into the house and up the burning stairs.
6. A manly form at her side she saw
   And joy was duty and love was law.
7. Hamilton smote the rock of national resources and abundant streams of revenue gushed forth.
8. Washington and Lafayette fought for American Independence.
9. Pride, poverty, and fashion can not live in the same house.
10. Vapors rise from the ocean and fall upon the land.

THE IDEA.

1. The *rose* is a beautiful flower.
2. *Bryant* is the poet of nature.
3. The *mushroom* is a *peculiar* plant.
4. *Indianapolis is the capital of Indiana.*
5. The *lily* is *beautiful.*
6. The *robin* is migratory *in* northern Indiana.
7. *Industrious men are* usually successful.
8. All *labor is noble and* holy.
9. *Our daily* tasks are our *sacred* duties.
10. *Life* is a stern reality.

Each italicized word in the above sentences expresses an *idea.*

What kind of thing is that expressed by each word?

What difference is there between that expressed by each word and by each whole sentence? Can there be any simpler mental thing corresponding to things as wholes than those expressed by each word?

Give the essential ideas of an idea. Define an idea.

Answers to the Above Questions.—Each word expresses a mental thing—a mental product. Each word expresses a more simple thing than that expressed by each sentence. There can not; it is the simplest mental product.

The essential ideas of an idea are: 1. It is a mental product. 2. It corresponds to something as a whole. 3. There are no simpler mental products corresponding to things as wholes. *An idea is the simplest mental product corresponding to a thing as a whole.*

CLASSES OF IDEAS.

1. *Mold, mushrooms* and *yeast* are plants.
2. *Soldier*, rest; thy *warfare* is over.
3. Why should the *spirit* of mortal be proud?
4. The melancholy *days* are come.
5. He was a *magnanimous* foe.
6. The day is *cold* and *dark* and *dreary.*
7. His sleep was *calm* as infant's slumber.
8. He passed by *on* the other side.
9. Let us then be up *and* doing.
10. Mary *or* her sister will go.

What do the underscored words in the first four sentences express ideas of; that is, what do they suggest to the mind? What do those in the next three sentences express ideas of? What do those in the last three sentences express ideas of? On the basis of the kind of

ideas they express how many classes of ideas expressed by the italicized words in these sentences? Suggest names for them.

Give the essential ideas of each class. Define each class.

Answers to the Above.—They express ideas of objects. Those in the next three sentences express ideas of attributes. Those in the last three sentences express ideas of relations. There are three classes of ideas expressed. *Substantive ideas, attributive ideas,* and *relational ideas* are good names for them.

The essential ideas of a substantive idea are: 1. It is an idea. 2. It corresponds to an object. The essential ideas of an attributive idea are: 1. It is an idea. 2. It corresponds to an attribute. The essential ideas of a relational idea are: 1. It is an idea. 2. It corresponds to a relation. *A substantive idea is an idea of an object. An attributive idea is an idea ofan attribute. A relational idea is an idea of a relation.*

EXERCISE.

Study the following sentences and tell what kind of ideas the various words in them express:

1. The violet is a modest flower.
2. The clouds are flying across the sky.
3. Longfellow is dear to the hearts of many people.
4. Maud Muller, on a summer's day,
   Raked the meadow sweet with hay.
5. Singing she wrought, and her merry glee
   The mock-bird echoed from his tree.
6. Lightning and electricity were identified by Franklin.

7. The circulation of blood was discovered by Harvey.

8. Aristotle and Plato were the most distinguished philosophers of antiquity.

9. The spirit of true religion is tolerant, social, kind and cheerful.

10. The summit of the Alps is covered with perpetual snow.

THE WORD.

1. Beautiful flowers are *ornaments* of *grove, field* and *hill.*

2. *Faith, hope* and *charity* are the three *graces.*

3. *Success* in life depends upon *intelligence, integrity* and *activity.*

4. *The natural healthy* child is *almost incessantly active.*

6. *The* curfew tolls *the* knell of *parting* day.

6. The guns fired *at* Concord were heard *around* the world.

7. True worth *is* modest *and* retiring.

8. *There* are four quarts in a gallon.

9. *There* are people dying of hunger to-day.

10. *Hurrah!* the field is won.

What first is each italicized word? What do those in the first seven sentences do? From the italicized words in the first seven sentences, what are the essential ideas of a word? Give the definition of a word from these essential ideas.

What do the italicized words in sentences eight and nine do? What does the italicized word in sentence ten do? From the study of the italicized words in all these sentences, what are the essential ideas of a word?

What, the definition for the word?

What is the specific function of the italicized words in the first three sentences; in the fourth and fifth sentences; in the sixth and seventh sentences; in the eighth and ninth sentences; of that in the tenth sentence?

On the basis of their function in the sentence, there are how many classes of words in the above sentences? Suggest names for them. Give the essential ideas of each class. Define each class.

Answers to the Above.—Each of the italicized words is first a language unit. Those in the first seven sentences express ideas. The essential ideas of a word from the study so far are: 1. It is a language unit. 2. It expresses an idea. And the definition from these essential ideas is: *A word is the language unit which expresses an idea.*

The italicized words in sentences eight and nine fill out the form of the sentences. The one in ten expresses feeling in a general way.

From the first and additional study the essential ideas of a word are seen to be: 1. It is a language unit. 2. It expresses an idea or fills out the form of the sentence or expresses feeling in a general way. *A word is the language unit which expresses an idea or fills out the form of the sentence or expresses feeling in a general way.*

The words in the first three sentences express substantive ideas; those in the next two sentences, attributive ideas; those in six and seven, relational ideas; those in eight and nine, merely fill out the form of the sen-

tence; that in the tenth, expresses feeling in a general way.

There are five classes: *substantive word, attributive word, relational word, expletive* and *feeling word.*

The essential ideas of the substantive word are: 1. It is a word. 2. It expresses a substantive idea. The essential ideas of an attributive word are: It is a word. 2. It expresses an attributive idea. The essential ideas of a relational word are: 1. It is a word. 2. It expresses a relational idea. The essential ideas of an expletive are: 1. It is a word. 2. It merely fills out the form of the sentence. The essential ideas of the feeling word are: 1. It is a word. 2. It expresses feeling in a general way.

A substantive word is a word which expresses a substantive idea. An attributive word is a word which expresses an attributive idea. A relational word is a word which expresses a relational idea. An expletive is a word which does not express an idea, but is used merely to fill out the form of the sentence. A feeling word is a word which does not express an idea, but expresses feeling in a general way.

EXERCISE.

1. Our flag is red, white and blue.
2. Many beautiful lilies grow in Japan.
3. Mary and Lucy gathered and pressed violets and buttercups.
4. O, there are people shivering with cold to-night.
5. Now then, let us proceed.

6. In peace children bury their parents; in war, parents bury their children.

7. Now, Barrabas was a robber.

8. Charity creates much of the misery it relieves, but does not relieve all the misery it creates.

9. Know, then, this truth, enough for man to know,
Virtue alone is happiness below.

10. The poor and the rich, the weak and the strong, the young and the old, have one common Father.

11. It was morning on hill and stream and tree,
And morning in the young knight's heart.

12. The castle gate stands open now.

13. Alas! the last ray of hope has fled.

14. Hurrah! victory is assured.

15. He shrugged his shoulders, shook his head, cast up his eyes, but said nothing.

THE THOUGHT.

1. Man is an animal.
2. Plants grow.
3. The bird is singing.
4. The happy children are playing.
5. Industrious men are not always successful.
6. Go.
7. Excused.
8. Coal is a fuel.
9. The wounded bird fell to the ground.
10. Life is both sunshine and shadows.

What does each of the above sentences express? What first of all is a thought. How does the mind form a thought?

What are the essential ideas of a thought? Define a thought.

How many ideas must every thought have in it?

Why? How many elements has every thought? Show. Suggest names for them. Give the essential ideas for each of the elements of the thought. Define each of the elements of the thought.

Answers.—Each of the above sentences expresses a thought. Each is first of all a mental product. The mind forms a thought by asserting the relation between two ideas.

The essential ideas of a thought are: 1. It is a mental product. 2. It is formed by the mind's thinking the relation between two ideas. *A thought is a mental product which the mind forms by asserting the relation between two ideas.*

Every thought must have in it three ideas, at the least. There must be two ideas for a relation to exist between; and there must be an idea of the relation between them. Every thought has three elements. It must have one element about which an assertion is made; a second one which is the idea asserted, and a third one which is the assertion. They are the *subject* of thought, the *predicate* of thought and the *copula* of thought.

The essential ideas of the subject of thought are: 1. It is an element of thought. 2. Something is asserted of it. The essential ideas of the predicate of thought are: 1. It is an element of thought. 2. It is the idea which is asserted of the subject of thought. The essential ideas of the copula of thought are: 1. It is an idea. 2. It asserts the relation between the subject of thought and the predicate of thought.

The subject of thought is that element of the thought of which something is asserted. The predicate of thought is that element of thought which is asserted of the subject of thought. The copula of thought is that element of thought which asserts the relation between the subject of thought and the predicate of thought.

THE SENTENCE.

1. Man is mortal.
2. The tree is green.
3. Shut the door.
4. Excused.
5. The whale is not a fish.
6. The black-snake is harmless.
7. The quail is a good friend to man.
8. In the field.
9. On the lake.
10. A fine red apple.

What is each of the above? What first is each of the first seven that the last three are not? What do the first seven do? What do the last three do? How do the first seven differ from the last three?

Suggest a name for the first seven; for the last three.

Give the essential ideas of the sentence. Define the sentence.

Answers.—Each is a word or group of words. The first seven are complete wholes; that is, they are *language units.* The first seven express thoughts. The last three express only related ideas. The first seven differ from the last three in that the first seven are

complete and express thoughts while the last three are not complete and express only related ideas.

The first seven are *sentences;* the last three, *phrases.*

The essential ideas of the sentence are: 1. It is a language unit. 2. It expresses a thought. *The sentence is the language unit which expresses a thought.*

CLASSES OF SENTENCES ON BASIS OF MEANING.

1. Dewey is called the hero of Manila.
2. A successful life is usually one of intense activity.
3. Strength is born of struggle.
4. Go, thou, and do likewise.
5. Prepare for your work.
6. Lead us not into temptation.
7. Who invented the steamboat?
8. Where do the lilies grow?
9. Mercy, how it rains!
10. O, what a sad calamity this is!

What is the purpose of the first three sentences? What is the purpose of the second three sentences? How do they accomplish their purpose? What are the seventh and eighth sentences addressed to the mind for? What are the ninth and tenth sentences used for?

On the basis of their purpose, how many classes of sentences are there in the above group? Suggest names for them.

Give definitions for each of these classes of sentences.

Answers.—The purpose of the first three sentences is to give information. The purpose of the second three is to influence conduct. They do this by expressing a

command. The seventh and eighth are addressed to the mind to seek some response. The ninth and tenth are used to arouse feeling.

On the basis of their purpose, there are four classes of sentences in the above group: *declarative, imperative, interrogative* and *exclamatory.*

The declarative sentence is that kind of sentence whose purpose is to give information. The imperative sentence is that kind of sentence whose purpose is to influence conduct by a command. The interrogative sentence is that kind of sentence whose purpose is to seek some response. The exclamatory sentence is that kind of sentence whose purpose is to arouse feeling.

EXERCISE.

1. Benevolence should be a duty and a pleasure.
2. Lead us into some far-off sunny land.
3. Shall we gather at the river?
4. Death said, "Shall I have naught that is fair?"
5. The old man said, "Try not the pass!"
6. Ask yourself this question, What is my aim in life?
7. The question is, Will he do as well as he knows?
8. What flower is this that greets the morn?
9. Beware the pine-tree's withered branch!
10. Life is real! Life is earnest!
11. Reputation is what men and women think of us.
12. I wish that you would close the door.
13. How dear to this heart are the scenes of my childhood
    When fond recollection presents them to view!
14. O, a wonderful stream is the river of Time.
15. Faith is born of doubt.

16. Be still, sad heart, and cease repining.

17. Good nature, like a bee, collects honey from every herb.

18. Ill nature, like a spider, sucks poison from the sweetest flower.

CLASSES OF SENTENCES ON BASIS OF FORM.

1. The soul lives.

2. The golden lines of sunset glow.

3. All names of the Deity should begin with a capital letter.

4. Columbus was born at Genoa, Italy.

5. Hydrogen and oxygen united constitute water.

6. Animals that have back bones are called vertebrates.

7. Crime increases when summer comes.

8. That children should obey their parents is a truism.

9. The belief that the earth moves was verified soon after the telescope was invented.

10. Slang is vulgar, because it is an affected mode of speech.

11. He made the proposition, but they did not accept it.

12. Pride goeth before destruction, and a haughty spirit before a fall.

13. Men may come and men may go,
But I go on forever.

14. The day is done and darkness falls.

15. I do not know what I was playing,
Or what I was dreaming then.

How many thoughts are expressed by each of the first five sentences? How many thoughts are expressed by each of the second five sentences? Describe the

thoughts expressed by each of the second five sentences. How many thoughts expressed by each of the third five sentences? Describe the leading thoughts expressed by each of the third five sentences.

The first five sentences are *simple sentences;* the second five, *complex sentences;* and the third five, *compound sentences.* State the essential ideas of each. Define each.

Answers.—Each of the first five sentences expresses just one thought. Each of the second five sentences expresses two or more thoughts. One of the thoughts is of more importance than the others; that is, it is a principal thought. The others are subordinate thoughts. Each of the third five sentences expresses two or more thoughts. Two or more of the thoughts are of equal rank, *coordinate,* and not of less importance than other thoughts expressed in the sentence, *non-subordinate.* That is to say, each expresses two or more *non-subordinate coordinate thoughts.*

The essential ideas of the simple sentence are: 1. It is a sentence. 2. It expresses just one thought. The essential ideas of a complex sentence are: 1. It is a sentence. 2. It expresses one principal thought and one or more subordinate thoughts. The essential ideas of a compound sentence are: 1. It is a sentence. 2. It expresses two or more non-subordinate coordinate thoughts.

A simple sentence is a sentence which expresses just one thought. A complex sentence is a sentence which expresses a principal thought and one or more sub-

ordinate thoughts. A compound sentence is a sentence which expresses two or more non-subordinate coordinate thoughts.

EXERCISE.

Classify the following sentences on the basis of form as determined by the form of thought expressed:

1. Bright days bring cheerful faces.
2. A peculiarity of English is, that it has so many borrowed words.
3. Hope comes with smiles to cheer the hour of pain.
4. Men's opinions vary with their interests.
5. He necessarily remains weak who never tries exertion.
6. Webster and Clay were great orators.
7. John and Mary are a handsome couple.
8. Silently, one by one, in the infinite meadows of heaven, blossomed the lovely stars.
9. The place where the children played is found and the place where they are concealed must be found.
10. Nature never did betray the heart that loved her.
11. Rip called him by name, but the cur snarled, showed his teeth, and passed on.
12. "My very dog," sighed poor Rip, "has forgotten me."
13. That life is long which answers life's great end.
14. He is the freeman, whom the truth makes free.
15. Your asparagus bed wants salt as much as you do.
16. Despondency is a serious check upon an expanding nature.
17. Servile fear about the condition of one's soul is a ban upon the projection of self into its larger capacity.
18. I can easier teach twenty what were good to be

done than to be one of the twenty to follow mine own teaching.

19. Individuals sometimes forgive, but society never does.

20. Not a truth has to art or to science been given,
But brows have ached for it, and souls toiled and striven.

GENERAL EXERCISE.

1. Milton, the English poet, became blind.

2. The camel is called the ship of the desert.

3. Christianity encourages truth, purity, hope, love and righteousness.

4. Intemperance will corrupt the purest heart, and enslave the noblest soul.

5. Kindness of heart and purity of purpose are characteristics of a noble manhood.

6. The dispute about who wrote Shakespeare's plays wastes time and energy.

7. The man is blest who knows what he is, what he wants, and for what he is living.

8. A man who is pleased with no one is more unhappy than he who pleases no one.

9. I go to the god of the woods to fetch his words to men.

10. Venus, when her son was lost,
Cried him up and down the coast.

11. A sunbeam streams through liberal space
And nothing jostles so as to displace.

12. Lucy was only six years old, but she was bold as a fairy.

13. The skylark is rather homely, having nothing in feather, feature, or form to attract notice.

14. How sleep the brave who sink to rest
By all their country's wishes blest!

15. The prayer, begun in faith, grew to a low, despairing cry of utter misery.

16. Who scoffs at you, must scoff at me.

17. The morn, in russet mantle clad, wakes o'er the dew of yon high eastern hill.

18. The cat's tongue is covered with many little sharp cones which point towards its throat.

19. He dreamed of his home, of his dear native bower,
And pleasures that waited on life's merry morn.

20. Days, months, years, and ages shall circle away,
And still the vast waters above thee shall roll.

Purpose of Exercises.—The exercises in identifying particular instances of the general ideas worked out have the two following purposes: 1. They help to fix in mind the general truths reached inductively. 2. They verify the general truths reached inductively.

This work is in harmony with the mind's natural mode of procedure, and is based upon the following principle of mind: *In getting truth the mind naturally goes from the particular to the general, then back to the particular.*

Further Illustration.—The following illustrations will differ from the preceding in two respects: 1. The subjects will be selected promiscuously instead of following the outline given under *steps,* as has been done in the previous illustrations. 2. Just the assignments are given, it being the intention to work out the answers in recitation.

THE ESSENTIAL ELEMENTS OF THE SENTENCE.

1. *Riley* is a poet.
2. *The boy* runs.

3. *The dog* is running.
4. Birds *fly.*
5. The sun *shines.*
6. Time *speeds away.*
7. Flowers of early spring are *blooming in the meadow.*
8. Children *are naturally* industrious.
9. Good books *are* our friends.
10. The bee *is* the type of industry.

What does each of the above sentences express? How many elements has each thought? What are they called? What in each sentence expresses the subject of thought; the predicate of thought; also, the copula of thought?

From the thought side, how many essential elements has each sentence? Name them. What is the first thing which each essential element of the sentence is? Just what does each essential element of the sentence do?

Give the essential ideas of each essential element of the sentence. Define each of the essential elements of the sentence.

NOUN AND PRONOUN.

1. Honest *men* are respected.
2. *Spring* is the inspiring *season* of the year.
3. *Autumn* brings sad *thoughts* to the *hearts* of the lonely.
4. *Crime* increases with the *advent* of warm weather.
5. The *leaf* of the *elm* is peculiar.
6. *He* spoke beautiful truths about *his* native land.
7. Many songs touch *our* hearts.
8. Where are you going, *my* little man?

9. Be *ye.* therefore, perfect.
10. Oh, *we* are lost!

What kind of ideas do the italicized words in the above sentences express? On this basis what kind of words are they? How do those in the first five sentences differ from those in the second five sentences?

Those in the first five sentences are *nouns;* those in the second five, *pronouns.*

Give the essential ideas of the *noun;* also, of the *pronoun.* Define the noun; also, the pronoun.

THE APPOSITIVE AND THE POSSESSIVE.

1. The *nation's* emblem is an eagle.
2. *William's* effort was rewarded.
3. James is *Mary's* brother.
4. Bertha sang *her* song beautifully.
5. The little boy gave *his* sick friend a bouquet.
6. Poe, *the poet,* was a genius.
7. He *himself* can not do it.
8. We are loyal to Indiana, *our native state.*
9. They were speaking to Dewey, *the psychologist.*
10. Hope, *the anchor of life,* is universal in man.

What does each of the italicized terms express in the above sentences? On the basis of what they express what kind of terms are they? What kind of elements are they in the sentence? What kind of terms do they modify?

Those in the first five sentences are *possessive modifiers;* those in the second five, *appositive modifiers.*

How is the appositive modifier like the possessive? How is it different from the possessive?

Give the essential ideas of the possessive modifier;

also, the essential ideas of the appositive modifier. Define the possessive modifier; also, the appositive modifier.

COMPARISON OF POSSESSIVE WITH APPOSITIVE.

Compare and contrast the *possessive modifier* and the *appositive modifier* with reference to: 1. Their essential ideas. 2. Their grammatical use in the sentence. 3. The modifiers they may take.

Illustrate each point with a good English sentence.

GENDER.

1. That *man* is a famous scholar.
2. The *lady* yonder is a popular author.
3. *He* is a benefactor who in any way increases human happiness.
4. That *teacher* made his report yesterday.
5. This *teacher* will make her report to-day.
6. The *child* has become a fine boy.
7. He is a *statesman* of note.
8. That *girl* always does her work well.
9. This *boy* will succeed.
10. This *chair* is a present from our friends.
11. Only a *parent* fully understands a *child*.
12. The *moon* hides her pale face.
13. The *sun* shows his power and glory.

How does the mind think the sex of the objects of which the nouns and pronoun italicized in the first three sentences express the ideas? What enables the mind to do this?

How does the mind think the sex of the objects suggested by the italicized substantives in the second three sentences? What shows this?

How does the mind think the sex of the objects suggested by the italicized substantives in sentences eight and nine? What shows this in these sentences?

That which shows how the mind thinks the objects of which the substantives express the ideas, in regard to sex is called *gender*.

Give the essential ideas of gender. Define gender.

How does the mind think in regard to sex the objects suggested by the italicized substantives in sentences one, three, four, six, seven, nine, and thirteen? How does it think those suggested in two, five, eight and twelve? How does it that suggested in sentence ten? How those suggested in sentence eleven?

On the basis of the number of sex distinctions made by the noun and pronoun, there are how many classes of gender? Suggest names for them. Give the essential ideas of each class. Define each class.

Discussion of Gender.—Oftentimes confusion occurs in the minds of students in the study of gender because of a failure to distinguish clearly between *gender* and *sex*. It should be clearly seen that *gender* is a characteristic, the *form* and *relation*, of nouns and pronouns, while *sex* is the physical difference between male and female objects. Thus, gender belongs to substantive words, while sex belongs to objects of which substantive words express the ideas.

Gender is usually said to show the sex of the object, but such is not at all necessarily the case. The thing which gender does show is *how the mind thinks* the object suggested by the substantive with respect to sex. That is to say, it shows that the mind thinks the object as having male sex, female sex, no sex, or merely sex without distinguishing which.

Thus, in the sentence, "*The sun shows his power*," "*sun*" is masculine gender, but the object has no sex; also, in the sentence, "*The ship has lost her rudder*," "*ship*" is feminine gender, but the object has no sex.

In a similar way the names of all plants are neuter gender, yet every one who has studied plant life very much knows that most plants have sex.

Again, since the form and relation of substantive words show that there are four distinct ways in which the mind thinks objects in respect to sex, there can be no fewer than four genders.

The opinion that there are fewer than four genders in English arises from a lack of knowledge of the real nature of gender.

CASE.

1. *Horses* are domestic *animals*.
2. The *camel* has been called the *ship* of the *desert*.
3. *Flowers* of *spring* are pleasing to *us*.
4. *He who* will not *keep his* promise is dishonest.
5. Browning is said to be so obscure that many can not understand *him*.
6. *Mary's* mother is very kind to her.
7. That teacher does *her* work well.
8. Prescott, the *historian*, was blind.
9. *Winter* having returned, the birds have flown.
10. *Friends*, I desire to call your attention to the beauties of nature.

What is the grammatical use of each of the italicized substantive words in the above sentences? What enables the mind to know this in each instance?

That which enables the mind to know the grammatical uses of substantives is called *case* by grammarians.

Give the essential ideas of case.

Define case.

From the standpoint of the different forms of the pronoun in the above sentences, there is basis for how many cases in the above sentences? Suggest names for them.

NOMINATIVE CASE.

1. *Sponges* are *animals.*
2. I know that *flowers* are a *blessing.*
3. My *stars!* is this fairy-land?
4. *John,* will you kindly shut the door?
5. Our *fathers,* where are they?
6. *Summer* having come, let us rejoice.
7. *William* being a *true man,* all respected him.
8. His being a *policeman* prevented the trouble.
9. Dewey is called the *hero* of Manilla.
10. They seem to have been successful *men.*
11. Henry, the *poet,* was an ornament to his country.

How is each of the italicized substantives used in the above sentences? A substantive used as any of the italicized in the above sentences is in the *nominative relation.*

Give the essential ideas of the nominative case. Define the nominative case. Illustrate with original sentences the various instances of the nominative relation.

OBJECTIVE CASE.

1. John struck *James.*
2. Bring *me* the book.

3. God overthrew the children of Israel in the *wilderness.*
4. You can not run a *mile* but you can walk *it.*
5. He was given a *cane* by his friends.
6. We believe *him* to be an honest *man.*
7. The president asked *him* to speak.
8. For that *man* to be a *hero* is not possible.
9. The precept was for *him* to be an honest *man.*
10. *Him* being a *scholar* is not disputed.
11. They sent the book for *him* to read.
12. I saw Niagara, a grand *spectacle.*

How is each of the italicized substantives used in the above sentences? A substantive used as any of the italicized in the above sentences is in the *objective relation.*

Give the essential ideas of the objective case. Define the objective case. Illustrate with sentences all the various instances of the objective relation.

POSSESSIVE CASE.

1. The *poet's* house was destroyed by fire.
2. The little bird has lost *her* nest.
3. *William's* task was finished before *his* father came.
4. This is Harrison, the *stateman's,* home.
5. Wolsey, the *cardinal's,* career ended in disgrace.

How are the substantives italicized used in the above sentences? A substantive used as any of the italicized in the above sentences is in the *possessive relation.*

Give the essential ideas of the possessive case. Define the possessive case. Illustrate with good sentences all the instances of the possessive relation.

EXERCISE.

Give the gender and case of each substantive in the following sentences:

1. Bread has been called the staff of life.

2. The city seemed to burst into song with the advent of these golden days and silver nights.

3. He grieved to give up his dog and gun; he dreaded to meet his wife; but it would not do to starve among the mountains.

4. One genius said, "I am Health, and whom I touch shall never know pain nor sickness."

5. But no living person is sunk so low as not to be imitated by somebody.

6. Upon the beach lies a piece of timber, part of a wreck.

7. The snow lay an inch deep on the brown tiles.

8. He is the chieftain who looms a head above his people.

9. This game has been called hide-and-seek for many years.

10. We are sure it could not have been they who were so thoughtless.

11. They know what is right but they do not always do it.

12. "What have I done?" is asked by the knave and the thief.

13. He that I spoke to is my early friend.

14. In the awful mystery of human life, it is a consolation sometimes to believe that our mistakes, perhaps even our sins are permitted to be instruments of our education for immortality.

15. Under the spreading chestnut tree
The village smithy stands.
The smith, a mighty man is he,
With large and sinewy hands;
And the muscles of his brawny arms
Are strong as iron bands.

Discussion of Illustrations.—In view of the purpose of the study of grammar as treated in a preceding chapter, it is evident that such lessons as illustrated above have much value in realizing each aspect of the triple purpose of this subject. They are though perhaps of the most worth in their disciplinary value. This appears from the following points of merit:

1. They are inductive in nature.
2. They lead the student to do the work for himself.
3. They make him independent and self-helpful.
4. They are in harmony with the laws of mental development; they are *natural.*
5. They foster the spirit of free inquiry and free investigation, the *scientific* spirit.
6. They give right habits of study.
7. They give a critical attitude of mind.

These various things are the essence of mental discipline from the standpoint of skill in thinking—accuracy and readiness in thinking.

CHAPTER XIX.

DEVICES IN GRAMMAR.

Kinds of Devices.—Devices in the teaching of any school subject are of great importance and are worthy of the most careful study. This is true because of the fact that reaching the desired end depends so largely upon the devices employed. And, since in grammar this is true to a larger degree than in most subjects, the study of devices in grammar is of the highest importance.

The following is a list of the most important devices in grammar teaching:

1. Assignments.
2. Class discussions.
3. Parsing.
4. Analysis.
5. Diagrams.
6. Text-books.

These all have their legitimate uses in teaching grammar and they are all subject to abuses. Each will repay special study.

Assignments.—There is no other device in the hands of the teacher that can be used with more effect in making his grammar teaching a success than his assignments. No other device furnishes better oppor-

tunity to the teacher for the display of professional ability in grammar teaching.

Every assignment in grammar if good must be possessed of the three following characteristics:

1. It must place before the learner a definite problem for solution in such a way that the learner will see just what the problem is.

2. It should always be in harmony with the principle that form in the sentence is determined by the thought underlying it.

3. It should lead the learner to do his own thinking.

While it is true in every subject that the assignment should place before the class a definite problem for solution, it applies with unusual force in teaching grammar. Clear, definite, logical assignments bring clear, definite, logical thinking, and systematic, energetic habits of study. These economize time and energy and in every way contribute to success. On the other hand loose, indefinite, general assignments bring slovenly habits of thinking; vague, feeble, uninteresting recitations; and illogical, bad habits of study. As a rule one can depend upon it that he will have recitations about as good as are his assignments.

In the birth of language thought always precedes the language, and the form of the language is determined by the thought. So in teaching the sentence should always when possible be approached from the thought side. It is the natural way, and the way best to teach effectively. Meaning is always the strongest

bond of association with any forms to be learned in grammar.

That students may become self-helpful and independent in grammar they must be led to learn to think for themselves; to observe the sentence and think and reach knowledge first-hand.

Illustration.—If a teacher should give the following assignment to a class, he would get probably two results:

1. Define the possessive modifier.
2. Define the appositive modifier.
3. Compare the appositive modifier with the possessive modifier.

First, the students would go to some text-book and commit to memory the definitions found there, and make an unsystematic attempt at the comparison.

Secondly, they would find little or no direct interest in the work and, after a feeble effort, give it up without sufficient preparation. As a matter of fact, in a class of any considerable size, a teacher would get both results. Neither of these results is good, since the students were not led to a sufficient degree to think for themselves.

For best results the assignment should be given a sufficient time before the recitation to give students ample opportunity to work it out well. It is preferable to give it a day in advance of the recitation at least.

The best assignment though will avail nothing unless it is worked out by the students. So the more

closely the students are held to the conscientious preparation on the assignments the more successful will be the work and the more good will the students get from it. This point is of course as true in the teaching of any other subject as in the teaching of grammar.

Class Discussions.—The importance of class discussions as a device in teaching grammar is so evident that no study is needed to prove it. Class discussions are of the highest importance, of equal importance with assignments. They have the following purposes:

1. To test the learner on his preparation and understanding of the subject-matter of the lesson.

2. To supplement the knowledge got in the preparation of the lesson.

3. To give right habits of study.

4. To approve, stimulate and inspire the learner in his work.

In the class discussions is where the points given by the teacher in the assignment are finally worked out. The teacher here tests the student as to his preparation and understanding of the lesson. These tests must be just, kind, accurate, and critical.

It often happens that a student after making an honest effort fails to work out completely one or more points in the assignment. Here the teacher has a chance by questions, illustrations, and directions to lead the student to think out the point for himself.

The teacher's opportunities for the display of rare tact and skill in class discussions are unlimited. Indeed

teachers are rightly regarded successful or unsuccessful according to their skill in conducting class discussions.

Text-books.—The text-book is relegated to its proper position in grammar teaching when it is considered a *mere device.* In the way in which grammar is usually taught in school the text-book occupies a much more important place in the minds of both teacher and learner than it should have. So much emphasis is frequently placed upon the use of the text that students get the impression that grammar as a subject is contained between the lids of the book, instead of the student's seeing that the text-book merely contains what some one has said on the subject of grammar, and that the subject would still truly exist, if every text-book were by some means simultaneously destroyed. To give the text-book such undue importance in teaching grammar as usually done is entirely unwarranted.

It is an abuse of the text-book as a device in grammar teaching to have the learner to commit to memory for recitation the various definitions, principles and rules usually found in such books. To ask the learner to master certain sections of the text, and demand verbal reproduction of such material as found therein in the recitation is bad in the extreme in teaching English grammar.

There are, though, some legitimate uses of the text-book as a device in grammar teaching. Among these are the following:

1. If the text-book contains a good collection of sentences, these may be used advantageously in the study

of particulars in the various exercises where sentences are needed.

2. After students have worked out well any aspect of grammar inductively, they may with much profit go to text-books and study them carefully on the same points. New suggestions will thus be studied with interest and profit, and that which the student has discovered for himself will be verified and fixed in mind.

3. The text-book, if a good one, may be used by the teacher to lighten the work of preparing the assignments. Without some such help the work of preparing daily assignments would be too heavy for many teachers.

Parsing.—In teaching, as in all other work, things tend to go by extremes. In accord with this truth, there was a time in the history of grammar teaching when the teaching consisted almost wholly of parsing. The parts of speech together with their grammatical properties were studied briefly from the text-book, then orders, or schemes, for parsing were committed to memory. The remaining work was parsing; the parsing of everything, prose, poetry, figures, and signs arithmetical, algebraic, and geometrical, and even pictures. It finally came to be seen that much of this work was almost wholly valueless, and then came the reaction against it. So in many places at present there is a tendency to do away with parsing altogether. This is the other extreme. Somewhere between these two extremes lies the happy mean.

There is a place in teaching grammar where parsing may be used with profit. When students have worked

through inductively any part of speech and its properties, their minds tend perfectly naturally to return to the particular instances of the general truths to identify them and verify its conclusions. And this is just what the mind does in parsing. Each step in parsing is an act of the kind of reasoning called identification.

Illustration.—If students have worked through the *noun,* the *pronoun* and their grammatical properties, *gender, person, number* and *case,* a lesson of the following kind would certainly be helpful, interesting, and since in accord with what the mind naturally tends to do, *pedagogical.*

Point out the substantive words, classify them, and give the gender, person, number, and case of each, with reasons, in the following sentences:

1. There are four Smiths in school.
2. I am he of whom you spoke yesterday.
3. John said to James, "I thought I heard you say to William, 'I have wounded myself.'"
4. The sun shows his power and glory.
5. Every sensation, thought or emotion one has literally burns away some of his brain substance.

Abuse of Parsing.—Parsing as a device in grammar is frequently abused. So much emphasis is placed upon it that it tends to become an *end* instead of a *means,* and to be able to parse well is taken to be the highest good in grammar work. With too many students and teachers the last question concerning any grammatical term is, "How do you parse it?" This is the first way in which parsing is abused; it is *overemphasized.*

Again, in many instances, a set order of parsing must be gone through with every word whether it is worth while to do so or not. For instance, in the sentence, *The child has become a hero,* the word, "*hero,*" parsed in the traditional way is, "noun, common, class, masculine gender, third person, singular number, nominative case, rule, etc."; and in a similar way the other words of the sentence both important and unimportant are dealt with. Now, the word, "*hero*" offers but one point of grammatical importance to any student who knows even elementary grammar. So to have the students go through the regulation, "noun, common, class, masculine gender, third person, singular number, nominative case, etc." is not only formal, but useless and silly. It is better by far to go directly to the problem the word involves and stop when it is solved. Thus the second way parsing is abused is that it becomes the *veriest formalism.*

Analysis.—Analysis is a good device in grammar teaching when properly used. It has the same purposes in general that parsing has. That is to say, it is valuable because of the following purposes: 1. It enables the mind to verify the general notions got in the inductive work. 2. It helps the mind in fixing firmly with itself the definitions, principles, and rules got in the inductive work. 3. It is a good means to enable the mind to grow skillful in seeing the shades of relation in the sentence. 4. It gives skill in the kind of reasoning called identification, this being called into exercise at each step.

It is found by experience that much good analysis work must be done in the best grammar teaching, if any very high degree of skill in seeing the fine shades of relation in the sentence is to be attained to.

Analysis, too, may be abused in grammar teaching though it is not so likely to be abused as parsing. Its abuse may reach in two directions: first, it may be made the end instead of a means in grammar teaching. Secondly, it, too, may degenerate into the driest sort of formalism.

Use of Diagrams.—This popular device in grammar teaching, to say the most for it, should be used sparingly, if at all. It is at the best not more than a sort of kindergarten device helpful to those who have not reached the stage of development which enables them to see the relations in the sentence without having it pictured for them.

There are good reasons for thinking that, instead of helping students to grow in skill in seeing the fine shades of relation in the sentence, it actually retards this growth. The difficulty seems to be that the learner gets diagrams in his head to such an extent that they come between him and the relations in the sentence and so obscure them that everything must be flashed before him on diagrams, either actually or in imagination.

Then again it is very discourteous to a sentence behind which is a grand thought or a beautiful picture to cut it up into fragments and hang its mutilated remains up on diagrams. It is as much as to say "you

are so bad that you can not be understood, so we will mutilate and hang you in order to understand you.''

For students who have reached a stage of development sufficient to warrant grammar work, the use of diagrams is entirely unnecessary; not only unnecessary but an injury to them.

Again, almost every author has his own ''method'' of diagrams. Thus a large number of ''methods'' of diagrams is more or less in vogue, with which students and teachers can not acquaint themselves, and with which it is not even desirable that they should acquaint themselves.

CHAPTER XX.

COMMON ERRORS IN TEACHING GRAMMAR.

Prevalence of.—There is no subject in the school curriculum the teaching of which does not offer perplexing difficulties. But some are more easily taught than others, and thus opportunities for error are more numerous in teaching some subjects than in teaching others. Grammar belongs to that class of subjects in the teaching of which the opportunities for errors are many. Thus it happens that a great many errors are prevalent as usually done.

The following are some of the most prevalent common errors:

1. Indefinite, erroneous purposes.
2. Bad methods of teaching definitions.
3. Bad use of text-book.
4. Teaching from the form side.
5. Bad assignments.
6. Abuse of parsing.
7. Abuse of diagrams.
8. Bad methods of analyzing.
9. Expanding and substitution.
10. Teaching grammar to children in a stage of development to which it is not adapted.

Each of these will repay brief study.

Indefinite, Erroneous Purposes.—In too many cases grammar is taught by teachers who have not clearly in mind any further purpose than to follow the course of study, or in some way, not clearly apparent, to help the learner to use good language. Each of these purposes is much too vague and general to be of much genuine help in teaching. The teacher with only such purposes before him soon grows to believe that grammar is not a subject of much value. He sees no specific good to be accomplished and goes about his work in such a way that no definite good results from it. Thus *his work is fruitless.*

Again the teacher who holds before himself the idea that the main purpose of grammar is *to teach how to speak and write correctly* soon discovers the contradiction between his purpose and what he actually accomplishes. This leads to a loss of faith in grammar, and is attended by all the evils that accrue from a lack of faith in one's work. These are (1) discouragement of both teacher and pupils; (2) slighting the work; (3) lack of interest; (4) dislike for grammar, and (5) bad mental habits.

Bad Methods of Teaching Definitions.—This is without doubt the most common error made in teaching grammar. The common practice, found almost everywhere, of having students to commit to memory the formal definitions, principles and rules found in textbooks violates every law of the child's intellectual life. It is unwarranted and inexcusable except on the ground

of ignorance and stupid incompetency of the teacher. This appears from the following reasons:

1. It is the exact opposite of the mind's natural way of defining.

2. It encourages the learning of meaningless language forms.

3. It can not be kept from degenerating into a kind of memory exercise that greatly hinders the development of the power to think accurately.

4. It makes the student dependent and helpless.

5. It kills interest and gives the learner an antipathy for grammar.

6. It arrests intellectual development.

7. It robs the study of grammar of its chief educational value.

8. It gives undue prominence to the text-book, exalts the authoritative method, and hinders the growth of the scientific spirit in teaching.

Bad Use of Text-book.—As has been seen before, the text-book is a mere device in grammar teaching and should not be slavishly followed, as is so frequently done.

It is difficult to use a text-book in grammar in which the definitions, rules and principles are formally stated, and which is placed in the hands of the students without detracting largely from the success of the work. Students will depend upon the text-book, and lose the benefit of working out the definitions for themselves in the mind's natural way. And thus they lose what is probably the highest value of grammar work. By the

use of the text-book in which there are formal statements for definitions, principles and rules the students form the habit of remembering words instead of truths and principles. This difficulty can scarcely be avoided. If text-books were made in such a way that no formal statements of definitions, principles and rules were to be found in them, this difficulty might be avoided.

In the light of our previous studies, the best text-book for daily use in the class is one which consists almost wholly of good collections of sentences and directions, but lacking all formal definitions and rules.

A teacher's manual in grammar, that is, a text for the teacher, but not to be placed in the hands of the students, might have such definitions, principles and rules stated for the guidance of the teacher perfectly properly. But such a book should not be placed in the hands of students.

Teaching from Form Side.—It is an error to lose sight of the fact that all form in language is determined by the thought which lies behind the form, and that meaning is the strongest bond of association with the form. To understand meaning as determining the form is always most helpful, in that it is in accord with the very nature of the sentence as an instrument in communicating thought.

Growing out of the error of emphasizing too much the form in its isolation is the standing controversy about whether the sentence has or has not in all cases three essential elements. Those who look at only the form side will always hold that such sentences as *Birds*

fly, have only two essential elements. And on a strictly form basis this is right. But from the viewpoint of the work the sentence has to do, every sentence has three essential elements. In the above sentence "*fly*" performs two offices. First, it expresses the idea of an attribute of the objects birds. Secondly, it asserts the relation between the idea *birds* and the idea *fly*.

But it is an error to teach that the sentence has only two essential elements, because it does not accord with the nature of the sentence and is not most helpful.

Again, emphasis upon the form side of the subject leads teachers to call such sentences as *John and James went to school,* simple sentences, while from the viewpoint of the work the sentence has to do, it is evidently a compound sentence. Many obvious errors arise in teaching grammar because of isolating the form of the sentence from its meaning to a greater or less degree.

Bad Assignments.—Bad assignments in grammar teaching are a common and prolific source of mischief. They are usually at fault in the following ways:

1. They do not give definite grammatical problems to be solved.

2. They do not lead the learner to observe the language and think for himself.

3. They do not lead the learner into right methods of studying grammar.

Assignments that illustrate all three of these errors may be found in hundreds of schools in every state in the United States every day in the school year.

Perhaps the worst assignments are those in which

certain sections of the text-book are given to be learned and recited.

Abuse of Parsing.—Parsing is abused in the following three ways all of which are errors:

1. It is carried to the extreme in that it is frequently made the leading exercise in grammar teaching.

2. It is sometimes made the end instead of the means in grammar teaching.

3. It is permitted to degenerate into the driest kind of formalism.

Abuse of Diagrams.—The use of diagrams is abused in the following ways all of which are errors:

1. It is made the chief exercise in teaching grammar, skill in diagraming being regarded as a guarantee of proficiency in the subject.

2. It emphasizes the grosser relations in the sentence and blinds the learner to the fine shades of relation in the sentence which proficiency in grammar requires.

3. It puts diagrams in the learner's head and thus militates against rapidity in seeing directly the relations in the sentence.

Bad Methods of Analyzing.—Analyzing in grammar is frequently of such a character that it fails to analyze to any very large degree. Often it brings out nothing but the most evident relations in the sentence, and those of little real worth in giving skill in real analysis.

Illustration.—For instance, in the sentence, *The guilt of the slave-trade sprang out of the traffic with*

Guinea, "*guilt*" is called the subject, "*sprang*" is called the predicate, and the copula is not mentioned. "*Out of*" is called a complex preposition. So far, there is no truth in the analysis, strictly speaking. The subject is "*The guilt of the slave trade,*" and the predicate is "*sprang out of a traffic with Guinea.*" The copula is "*sprang.*"

Again, it would be customary to say, "*out of a traffic with Guinea*" is an adverbial modifier of "*sprang.*" So much is evident and is not worth much in revealing the exact force of the expression in the sentence. But just what is the effect on the sentence of "*out of a traffic with Guinea*" and the nature of the expression "*out of*" are points of true grammatical worth in the sentence.

These errors may be put as follows:

1. Analysis is loose, general and inaccurate. 2. Analysis degenerates into the driest sort of formalism. These are the errors to be guarded against.

Expanding and Substitution.—By this error is meant that when a sentence offers difficulty in analysis or parsing, another sentence which means the same or very nearly the same thing is substituted, which does not offer difficulties, and disposed of instead of the original one.

It is evident that this is simply evading the point. There are no sentences in English which offer difficulties, which can not be recast into sentences which mean the same thing, or very nearly the same, and whose analysis offers little or no difficulty. So to teach the

learner to do this establishes a precedent to which there is no limit, and analysis and parsing tend to become so much weakened that they lose largely their value. And again the student is led into deceiving himself by thinking he has solved the problems in the original sentence.

Illustration.—It is of some genuine grammatical value to the student to analyze the sentence, *It was from me that he received the information.* But recast the sentence into *He received the information from me,* and its analysis is worth comparatively little. Then again the teacher or student should not think he has analyzed the first sentence, for he has not. It remains just the same unsolved problem it was at the start.

Further Illustration.—To take the sentence, *I know what is right* and recast it into the sentence, *I know the thing which is right,* and analyze the second and not the first is an error. The first sentence has not been analyzed. It remains and the point has simply been evaded.

There is a real need for such words as *"what"* in this sentence, and the student of grammar should see that need. To analyze another sentence which has the same meaning is to turn the student away from this truth.

To change the sentence, *The book is worth a dollar,* to the sentence, *The book is worth to the value of a dollar,* is to ignore an idiom of the English language and to make a sentence no good writer would use.

All this is an error in teaching grammar, for it turns the learner away from a knowledge of the English

language as it is and substitutes awkward expressions for study.

There are no objections to substituting and expanding in grammar as a means of showing relation providing the original problems are then solved and not, as too often done, evaded.

Too Early Teaching of Grammar.—One of the most pernicious and wide-spread errors current in teaching grammar is this one of teaching it to children before they have reached a stage of development to which grammar is adapted. It is almost unaccountable that efforts have been made for so long to teach grammar to children in the first five or six years of their school lives without the unreasonableness of such work having been seen by more teachers.

Grammar is a difficult, reflective study which requires careful abstract reasoning, critical judgment and conceptual thought; and, while children can learn something of the subject before the age of fourteen or fifteen, their time would be very much better spent by devotion to subjects adapted to their stage of development.

There should be approved, carefully planned systematic primary language lessons given regularly and emphasized in these years, but no reflective grammar. The grammar work can be done satisfactorily only later.

This attempt to teach a subject above the capacity of children is certainly a great and common error in grammar teaching almost everywhere. It is the surest way to produce the following results:

1. Prejudice the learner against grammar.
2. Make his school life disagreeable for him.
3. Dwarf and stunt his capacity to reason and judge in the study of language, and dull his appreciation of it.

CHAPTER XXI.

THE PURPOSE OF LANGUAGE LESSONS.

Origin of Primary Language as a Subject.—Primary language as a school subject has not been in the school curriculum very long. It is one of the new subjects in school. There are teachers almost everywhere who can remember a time when no such subject was in the school course and so no place for it in the daily program. This being the case, the question, What brought primary language as a subject into the school curriculum? at once suggests itself.

It is a truth, in general, to say that the same thing which brought grammar into the school curriculum was, also, the origin of primary language lessons. That is to say, it was the notion that the children did not use good enough English in expressing their thought and feeling; also, that there was no subject in the school course which was helping the children to a large enough degree in doing this.

But the circumstances under which language lessons originated were different from those under which grammar originated. When grammar came into the course of study there was no subject in school whose specific claim was that of helping the learner in speaking and writing correctly. Language came after grammar had been tried and found wanting.

It took a good many years for people to appreciate that grammar was not realizing in the lives of those who study it what was claimed to be its main purpose. When at length this was seen, then it was thought that some other subject should be added to the school course which would actually give the learner help in communicating his thought and feeling in good English.

There were two aspects of the need from which language was born. First, it was thought that children did much toward forming their language habits in the first three or four years of their school lives, before they were capable of studying grammar, and that that was the main reason why they did not acquire the habit of using good language from their grammar work. Secondly, it became known that grammar was claimed to do something for the child that it actually did not and could not do; that is, its study did not and could not fix with the children the habit of using good language in speaking and writing.

According to the first idea, it was thought that primary language should be a subject suitable for children to study before they were developed enough to study grammar; that it should form a basis for grammar study, and that as soon as children could take up the study of grammar, they would no longer need to study language lessons. It was thought they could take up the grammar work in the fourth or fifth school year.

According to the second idea, it was thought that primary language should be a subject the pursuit of which would actually realize in the life of the learner

what grammar had failed to do; that is, *actually* enable the learner to use good English in expressing his thoughts and feelings.

Thus primary language in the school curriculum was born of two ideas:

1. The need of a subject which could be studied before the children's mental development warranted the study of grammar, and which would give a basis for grammar.

2. The need of a subject the pursuit of which would do for the children what grammar had failed to do; that is give the children the habit of expressing their thoughts and feelings in good language.

History of Language Lessons in Our Schools.— There is always help in tracing through the various stages of growth in the teaching of any subject in the school course. It enables one to see what has been tried, its successes and failures, and to see to some extent what may be done and what is to be avoided.

School officers were the first to see the need of a new subject in the school course whose pursuit would actually teach the learner to speak and write correctly. The need was perfectly clear. But what the nature of the subject should be whose study would bring about the desired result was not clear. But teachers, school officers and authors everywhere courageously went to work on the problem. And in the development of primary language teaching from that time to this, three stages are discernable.

In the first stage school officers were careful to

have a subject called primary language appear in the courses of study for all primary schools. And every teacher, in order to keep up with the times and avoid the criticisms of the school officers, must have a period for language lessons appear on his daily program. All felt the need, but no one knew just what the subject should be like. Teachers were in reality compelled to teach something and call it primary language.

In this first stage language lessons were chaotic, but partook more of the nature of a kind of grammar work than anything else. Lessons were given on *name words, quality words, action words, asking sentences, telling sentences,* etc., the teacher thus seeming to think such work was not grammar work since the names of terms were changed.

On one occasion the writer listened to a class of second and third year children reciting what their teacher called the language lesson. The recitation was intended to be on *gender,* but the little ones misunderstood the term and called it *"ginger,"* very much to the embarrassment of the teacher. From the viewpoint of real language lessons, these lessons were almost worthless. But they were a beginning.

Book-makers, always ready with the very best thing on any subject, soon flooded the country with books on primary language. And this may be regarded as the second stage in the development of language teaching. These books were followed by teachers and their thought as to what primary language as a subject was like was thus molded. There were no books

to be followed in the first stage, but an abundance of books characterized the second stage.

The dominating idea of these books almost invariably was, that principles and rules should be taught to the child in the light of which he was expected to speak and write good English. The controlling idea of the books was thus so fundamentally wrong that the books were not only almost worthless, but were even the source of much evil. This was true because, to start with, the child never naturally learns to use language by rule; then, the books were followed by teachers, and thus language teaching in this stage did not rise above the fundamental error that children learn to use language by rule.

In the next stage the language book idea gave way to the more rational idea that no text was needed either in the hands of the pupils or in the hands of the teacher. This is the third stage in the development of language teaching, and is the stage of the present.

The ideas that characterize this stage are:

1. Pupils should be taught language in harmony with the way they *naturally* learn it; the way they learn it before they come to school.

2. Language lessons may most naturally and best be taught by correlating these lessons with other school work; with nature study, geography, history, reading, primary literature and so on.

The Purpose of Language Lessons Analyzed.—The purposes of language lessons may be analyzed into two general classes. 1. *Distinctive purposes.* 2. *Common*

purposes. There are some purposes in the education of the learner that can be realized in his life better by primary language than by any other school subject. Such purposes are the *distinctive* purposes of primary language. They distinguish it from other subjects. Again there are some purposes in the education of the learner which can be realized in his life by primary language and also by other subjects; that is, by primary language in common with other subjects. Such purposes are *common* purposes. They do not distinguish primary language from other subjects.

Distinctive Purposes of Language Lessons.—These, as indicated, are the purposes which distinguish primary language from other school subjects. Of these there is, first, the *main purpose;* and secondly, a *subordinate purpose.* The main purpose is the most important one, and so the work which points toward the realization of this is the work upon which the emphasis will be placed in teaching language lessons. The subordinate distinctive language purpose will call for work that looks toward its realization, but, since it is of less importance than the main aim, less emphasis will be put upon it.

Main Distinctive Purpose.—The question to be answered here is, What is the main thing which language lessons are to do for the learner that can not be done by any other lessons so well? And the answer to it is, that *it is the main purpose of language lessons to give the learner the habit of using good English in communicating his thought and feeling.*

There are two terms in this statement for the main purpose of language lessons whose meaning should be emphasized. First, the term, *habit,* and secondly, the term, *good English,* need special study. It is to be noticed that the statement does not say *to teach how* to use good English. There is a wide difference in *knowing how* to use good language and in *having the habit* of using good language. One may *know how* to use good language and still have to exercise the greatest care and watchfulness and even then do so only with great difficulty. On the other hand one who has acquired the *habit* of good language uses good language with the greatest ease and facility. It is to fix the *habit* of good language with the learner that must be aimed at in all primary language teaching.

Again it is to be noticed that the statement does not say the habit of using *correct language.* It is not sufficient to aim at the habit of speaking and writing *correctly,* if by *correctly* is meant what is grammatically *correct. Good* language is more than grammatically correct language. *Correctness* is but one element of good language. The other elements are *clearness, energy* and *elegance.* Thus good language is *correct, clear, energetic* and *elegant* language.

Thus the following statement is arrived at: *The main distinctive purpose of primary language is to lead the learner to acquire the habit of using correct, clear, energetic and elegant language in communicating his thought and feeling.*

The Subordinate Distinctive Purpose.—This pur-

pose is in harmony with one aspect of the need which brought language as a subject of study into the school curriculum. This, it will be remembered was the need for some subject to lead up to the study of grammar in the school course, to lay a basis for the study of grammar. It thus is one part of the purpose of primary language to form a basis for the study of grammar. But this is only a subordinate distinctive purpose and not the main one as once thought. It is of small importance when compared with that of fixing the habit of good *language* with the learner.

Common Purposes.—Every school subject has purposes of its own which its study is to realize in the life of the learner. But each subject also has purposes which its study realizes in the life of the learner, but which could be realized probably as well by the study of some other subject. These can not be rightly called distinctive purposes of language lessons, but they must not be lost sight of in teaching primary language. These purposes are as follows:

1. Mental discipline, exercise in mental activity to the end of forming accurate, ready habits of thought.

2. The acquisition of valuable knowledge, knowledge useful for guidance in right living.

This study on the purpose of primary language lessons may be summed up as follows:

Purpose.

1. Distinctive.
   a. Main. To lead the learner to form the

habit of using correct, clear, elegant, and energetic language in communicating his thought and feeling.

b. Subordinate. To give the learner a basis for the study of grammar.

2. Common.

a. Mental discipline, exercise in mental activity to the end of forming accurate, ready habits of thought.

b. The acquisition of knowledge valuable for guidance in right living.

Importance of Purpose.—In teaching a subject which has been so generally chaotic as primary language has been in the schools, it is of the highest importance that a perfectly definite purpose be held in mind by the teacher. A purpose is an ideal for the teacher. It stimulates him to endeavor; and that it may be most stimulating, it must be *definite.* Vague ideals are not stimulating. Definite ideals are both stimulating and inspiring. One of the greatest hindrances to successful language teaching almost everywhere is that teachers are not entirely definite as to what they want to accomplish.

Purposes of Language and Grammar.—It is helpful to see that the purposes of primary language and of grammar are different in several important respects.

Language lessons have for their most important purpose to fix the habit of good language with the learner in expressing his thoughts and feelings. This has been found to be the least important function of grammar.

The most important function of grammar, is to train the mind of the learner into right habits of thinking and feeling. This is only a subordinate purpose of primary language.

Primary language has for one of its purposes to furnish a basis for grammar. Grammar furnishes a basis for rhetoric, literature, Latin, Greek, etc.

The purpose of primary language and grammar as subjects of study are not identical and no worse mistake can be made than to suppose them to be so.

CHAPTER XXII.

NATURE AND SUBJECT-MATTER OF LANGUAGE.

The Problem.—Being satisfied that the right view of the purpose of language lessons has been taken, we are confronted with the question, What are the lessons to be which will fix with the children the habit of using good language in expressing their thought and feeling? And another aspect of the problem is, What lessons are adapted to do this and at the same time be in harmony with the other three purposes set up?

We can not depend upon what has been done in the past for guidance on this subject, for in no other subject in the school curriculum has the work been more chaotic and unsuccessful. In the teaching of no other subject has more valuable time been wasted, and in no other subject has the work been more unsatisfactory to the teachers themselves.

Neither can text-books be depended upon for guidance, for there is little or no uniformity among them as to what language lessons should be. Also, they have been tried and found wanting.

Help on the Problem.—Help may be obtained on this problem from two sources. First, from ourselves. That is to say, by studying the problem carefully and depending upon the integrity of our own thought after

studying the mind's natural way of learning language, together with the way one must use language throughout his life. This means that help may be obtained by studying the learner himself.

Secondly, by studying what the best educators have thought and said on the subject.

The Mind's Natural Way of Learning Language.— A little reflection shows that the child gets his first words by imitation. There is a time in his life when he is hungry for words. He comes in contact with *objects, attributes,* and *relations* in the world about him. From these, *ideas* and *thoughts* arise in his mind and he wants the terms which symbolize them. He picks these up from his companions, mother, father, brother, sister, playmates, and others, thereafter using them by imitation. Seeing the use of these he wants more. He has ideas and thoughts but lacks the language forms to communicate them. He wants to communicate them because he has the instinct to communication. His consciousness of this need makes him receptive for words and sentences.

But this is not the only way he learns language. It is usually said that the child learns language before he goes to school by *imitation* from his mother's tongue. This is of course true, but it is not the whole truth. The whole truth is, he learns words for a time by imitation, but he soon begins to use them in combination by inference rather than by imitation.

The child is inventive and manifests it in the expressions he uses. He invents expressions. The English

language is often inconsistent, and since it is so, the child makes errors because his inferences are too consistent for the language. A little four-year-old said, "Look out, the cow will hook you, for I see her hooks." Again, a little one three years old said, "I want to go out in the shade and hammock." She had heard the word *swing* used both as a noun and as a verb. She had heard the word *hammock* used as a noun, and had inferred that it could be used as a verb. A little boy was taught that a man or boy who does the right thing at the right time is a *hero*. When asked what a woman or girl should be called who does the right thing at the right time, he said, "I think she is a *shero*."

One does not have to study children long in their use of language to get sufficient evidence of the fact that they are inventive; that is, that they make new combinations, by inference, of the words learned first by imitation.

This study shows that there are the three following steps in the child's natural process of learning language:

1. He gets thought and feeling which is aroused by the world of objects, attributes, and relations about him.

2. He communicates this thought and feeling in language forms.

3. He depends upon his associates for his language forms.

And this study further suggests that, if the teacher

of language follows the child's natural way of learning it he will do the following three things:

1. *Develop thought and feeling in the life of the learner.*

2. *Stimulate the learner to express this thought and feeling.*

3. *Supply the correct language forms when they are in any way lacking.*

The Language Period.—Students of children are now bringing the fact that there is a language period in the life of the child before teachers and parents in such a way that there is a growing appreciation of this truth. This language period is on the average from the time the child begins to talk to the period of adolescence, the age of thirteen or fourteen.

Now, if this period is permitted to pass by without the child's having acquired fair language habits, the probability is that he either never will do so, or will do so with much difficulty and at great cost.

The following from "Taylor's Study of the Child" is suggestive on this point: "Children seldom lack for words to express their ideas. This is particularly true of children from three to twelve years of age. The confusion and hesitancy of the youth are not generally found earlier in life. Children either tell what they know or frankly say they do not know. They may often be wrong in what they say, but if they think they know a thing, they usually have a word for it. If these things be true, the cultivation of the child's language in these earlier years—years in which we have been exalt-

ing sense-perception—needs to be given greater prominence than now accorded it.''

''Grammar is too often taught as a means of helping a child correct his language, whereas proper guidance in these years when he was learning language as naturally as he was learning to walk, would have made all such work unnecessary.''

This is the period of predominant brain growth as a whole, and also of the development of the nervous centers situated in the third convolution of the left frontal lobe of the brain, which control speech. During this period these nervous centers are taking on their organized modes of action. And in this period they, due to their unstable condition because of growth and development, are easily organized into any desired mode of activity. Once this period passed, and the growth completed, the centers become more stable, and the opportunity for the most effective language teaching is forever gone.

''A well-trained nervous system is the greatest friend the mind can have. An ill-trained nervous system is a relentless enemy to the higher mental powers. It follows its victims and thwarts their aims until the pitying grave stops it. The writer can never forget the despair of a man who had become wealthy and who wished to go into educated society. Early associations had trained his motor mechanism to say: 'He done wrong. I laid down. They set down and rested. I could have went.' He procured teachers to instruct him in the right forms, and he finally learned them so

that he could write them out correctly after a little study. But, alas! he could not talk with his pen or fingers. The brain cells governing the vocal muscles worked automatically, as they had been early habituated. This automatic working was followed, but not preceded by consciousness. Not until after the words had escaped him would he know that they were wrong. The brain cells in his third left frontal convolution, with the vocal habituation due them, were an enemy watchful and relentless.''

Conditions Under Which Language Is Naturally Used.—Before children start to school they use language when they have thoughts and feelings to express, and which they desire to express. Naturally they do not use it at any other time. Also, when they are using language their mind's energy is focused on the thing about which they are thinking, and not upon the language. This is an observation worthy of reflective attention, because of the valuable guidance it gives in teaching primary language.

Illustration.—On the table where the writer is at work sits a jardiniere containing a hyacinth just bursting into bloom, and a child four years old is admiring it. She is chattering about ''how pretty, how sweet, and how nice'' it is. Her mind is wholly absorbed with the object about which she is thinking and talking.

And this is perfectly natural. This is the way language is always naturally used. Thus the child naturally learns language with his attention focused on the object about which he is thinking and talking.

A little reflection here shows that this is the way language is to be used throughout life. The one who uses the language will have his mind's energy largely employed in the thinking he is doing, when he uses language under natural conditions.

School Work and Living.—It is a sound educational principle that *the school work of the learner must correlate with his life work after leaving school.* This means that any work learned in school must be carried on in the same way in school as it will be carried on in life by the learner. For instance, the learner should practice writing in school as he will be called upon to write after leaving school. Or he should learn to read or spell as he will be required to read or spell after leaving school.

As an educational principle this is true and fundamental, for only in this way can school work best prepare for the work of life, the aim of all work in school.

This is substantially the same principle as one learns to do by doing, and learns to do a thing by doing *it,* and not by doing something else. For instance, the way to learn to ride a bicycle, to learn to skate, or to learn to play a piano is by doing these very things, and by doing them in the same manner as one desires to do them later.

Application to Language Lessons.—Having learned that the child uses language before he goes to school with his attention engrossed with the object about which he is thinking, and that he will use language in the same way throughout his life, it plainly appears that

his language lessons, if they are to prepare him for his life work, must be carried on in the same way. That is to say, the language lesson should be of such a character that the learner will be acquiring the habit of using good language with his mind's energy focused on the thing about which he is thinking, and not with his attention on the language.

This fundamental principle of all language teaching has generally been violated in practice almost everywhere. And because of a failure to grasp this principle and appreciate its importance in language lessons, much poor and fruitless work has been done. Children, in so far as they have studied language and mastered it at all, have usually done so by dealing with the language directly with their attention on the language—a way they never *naturally* use it in life.

This is the very way most of us have mastered the use of language, in so far as we have done so at all. As a result of this, those of us who know what good language is, can use pretty good English so long as our minds are centered on the language, but as soon as we have to use language under the tension of thought and feeling which take the mind's energy away from the language, we make errors in our English.

This is just what could be reasonably expected, because we are called upon to use language under different conditions from those under which we studied it.

This is the chief reason why many of us who are not careless and who would really like habitually to use pure and elegant English make errors in speaking and

writing, even when we know better. And this is also the main reason why we mispronounce words in speaking and reading, and misspell words in writing whose pronunciation and correct spelling we well know.

Illustration.—A friend who teaches grammar and who knows well what good English is, but who has mastered his English in this unnatural way—by studying it with his attention on the language—when speaking under the tension of thought and feeling will make as many as five or more errors per minute. If he were called upon to use the same sentences in such a way that he could keep his attention upon the language, he would not make a single error. This is a common observation as well as a common experience.

Principles of Language Lessons.—From the study so far, some principles valuable for guidance in teaching language may be reached. The following are evident:

1. The child naturally at first learns language by imitation, and afterwards uses it by imitation and inference.

2. The learner desires to use language only when he has thought and feeling to express.

3. In language, as in the pursuit of any art, the learner learns to do by doing.

4. The learner will best acquire the habit of using good language by dealing with the language with his mind engrossed with the object of thought, and not with his attention on the language.

5. Language as a subject is to be taught with em-

phasis in the language period, since it is peculiarly adapted to this stage of the child's development.

The Subject Matter of Language.—Primary language as a subject deals with *discourse* as its language unit. It deals with words and sentences, it is true, but not in their isolation. Language aims at habits of the correct connection of sentences as well as correctness, elegance, clearness, and energy in the sentence. In so far as primary language deals with words and sentences, it deals with them only as parts of the larger whole, *discourse.*

Reading, literature, and rhetoric as a science, also deal with discourse as their language unit, but discourse as a *finished* product. Primary language and composition as school subjects deal with discourse but not as a finished product. They deal with discourse in the process of construction; that is, as an unfinished product.

From the above study the following statement of the subject matter of primary language is reached:

The subject matter of primary language is discourse in the process of construction, as a medium for communicating thought and feeling, as to its correctness, clearness, energy and elegance.

Oral and Written Discourse.—Language as a subject deals with both oral and written discourse. The learner will be called upon during his life to communicate his thought and feeling in both oral and written form; and since the language lesson is to prepare him for living, he must become skillful in both kinds of com-

munication. In the lower grades the oral communication should predominate largely, and in the more advanced grades of the language work they should balance each other pretty well. It is a mistake to make the advanced stages of the language work almost wholly written as usually done. It is, of course, a worse mistake to make the lower grades of primary language work predominantly written discourse.

Description, Narration, Exposition and Argument.—Keeping in mind that the learner is to be prepared to communicate in good English his thought and feeling throughout his life, and that he will do this by means of discourse, we see the necessity of studying further into the nature of discourse. A little further study shows that there are classes of discourse depending upon the nature of the thought to be expressed, and that the learner in expressing his thought and feeling will use these various classes of discourse. There are on the basis of the kind of thought to be expressed, the following kinds of discourse: *description, narration, exposition* and *argument.*

Description.—The mind will be called upon to deal with *particular* objects, and to express its ideas and thoughts concerning these objects at various times in life. The mind can view the object as it is at any fixed time by perceiving its co-existent attributes and parts. Discourse which is the communicating medium for setting forth the co-existent attributes and parts of a particular object is description. Thus description deals with a particular object as to its *statical* attri-

butes and parts. A particular object is viewed as it is at any time and the mind embodies its knowledge of this object in discourse, and this discourse is description. A description is in a sense a photograph of a particular object; for, like a photograph, it shows the object as the mind catches it at a fixed time.

The essential ideas of description are:

1. It is a kind of discourse.
2. It deals with a particular object.
3. It sets forth the co-existent attributes and parts of its object.

Illustration.—Before the writer on the writing table sits a hyacinth in full bloom giving off its fragrance from a spike of most beautiful violet colored flowers. If the attributes of the hyacinth as a whole were given, the parts named, and their attributes stated just as the hyacinth appears at the present time, the production would be a description. The production would be discourse, the hyacinth a particular object, and it would be dealt with as to its co-existent attributes and parts.

Narration.—Again, the mind deals with particular objects by perceiving their attributes and parts as changing. Discourse which is the communicating medium for setting forth the changing attributes and parts of a particular object is narration. Description deals with a particular object as to its *statical* attributes and parts, but narration deals with a particular object as to its *dynamic* attributes and parts. *Change* is the thing emphasized in narration.

The essential ideas of narration are:

1. It is discourse.
2. It deals with a particular object.
3. It sets forth changing attributes and parts.

Illustration.—If the hyacinth mentioned above had been studied from day to day and the change carefully recorded as it grew, with a discussion of its appearance from time to time, the record of this when put into coherent form would have been *narration.* The changing attributes and parts of the particular object would have been thus set forth.

The record of a journey or of an excursion, of incidents, and biographies are narrations. The discourse which treats of life histories of animals and plants is narration. These are all narrations because they treat of particular objects as to *change.*

Exposition.—The mind may deal with a general idea by thinking the elements, or truths, of which it is made. Discourse which deals with a general idea, or a general notion, is exposition. The mind thinks the common truths of each object of a class, defines the class, and illustrates it; then, divides it into subclasses again and again, thinks the common truths, defines and illustrates, and embodies its thoughts in discourse, and this discourse is *exposition.* If the adjective were chosen as a subject, defined, divided into classes and subclasses again and again, these discussed as to definition, inflection and illustration the discourse produced would be exposition.

Any general idea, as the *adverb, tree, horse, light,*

electricity, case, mode, character, or *honesty* might be studied out by the mind and its thought embodied in discourse, and such discourse would be exposition.

The essential ideas of exposition are:

1. It is discourse.
2. It deals with general ideas.
3. It sets forth the elements of these by definition, classification and illustration.

Argument.—The mind deals with general truth by applying it to particular facts and cases, and the thought thus produced is embodied in the kind of discourse called argument, or argumentation. Thus argument is the kind of discourse which applies the general idea to particular cases. The argument as to whether a certain thing is right or wrong consists in applying the general ideas of right and wrong to the particular thing.

Individuals to argue must agree on general ideas, or fundamental truths, or there is no argument, merely dispute.

The essential ideas of argument are:

1. It is discourse.
2. It deals with general ideas or truths.
3. It applies these truths to particular cases.

Relation to Language Lessons.—It has not been the intention here to study at any great length these four kinds of discourse. One thing to be seen here is that, in using language throughout life, the learner will have occasion to use these four kinds of discourse, and should be prepared to use them accurately and read-

ily. And for this reason, that he may teach the learner to do this, the teacher should understand the process of construction of these four kinds of discourse. And the teacher who does understand them will do better primary language teaching than the one who does not, other things being equal.

Narration and description are easy kinds of discourse to make, but exposition and argumentation are much more difficult of construction. No child in the language period is likely to do creditable work in the construction of either exposition or argumentation. The language of the infant and child is almost wholly narration and description. Exposition and argumentation are language of higher stages of mental development than those of infancy and childhood.

In primary language work the exercises should almost entirely be in narration and description. These two kinds of discourse construction are well adapted to the mental development of the learner in the language period. But exposition and argument are kinds of discourse construction illy adapted to this period. The laws of the mind and the laws of discourse show that the main lines of work in primary language lessons are to be narration and description. The first lessons should be narration, because such lessons are easier and much more interesting.

Much bad work has been done in teaching primary language because of a failure on the part of teachers to appreciate the truth that the learner can not make expositions and arguments of merit, in the language

period. Children have been asked to produce expositions and arguments when the work was entirely above their ability. To ask a child to write on "Industry," "Courage," "Patience," "Character," etc., is to ask him to produce an exposition. Such work *kills interest, paralyzes endeavor,* and *gives* the child *a lasting hatred* for his language lessons.

Relation of Primary Language to Other Subjects.—There are some mischievous views to some extent held concerning the relation of primary language to other subjects in the school curriculum.

The following may be studied profitably:

1. It is held that there is no such subject as primary language distinct from other subjects.

2. It is held that what is called primary language is a phase of simple grammar work.

3. It is held that primary language lessons should not constitute a regular line of work, but that these lessons should be done incidentally in connection with other work.

Is Primary Language a Subject?—To study this question systematically one needs to see how one subject may be like other subjects and different from them. The likenesses and differences appear in three things: 1. They may deal with the same or different things. 2. They may deal with these things in the same or in different ways. 3. They may have the same or different purposes.

Now, there are only two subjects in the school course with which primary language is likely to be confused.

These two subjects are grammar and composition. All subjects except these are so evidently different from primary language that there is no danger of confusion. To grammar lessons and composition lessons primary language lessons are indeed closely related, but they are not identical in either case.

Primary language differs from grammar as follows:

1. Primary language deals with discourse as its language unit while grammar deals with the sentence as its language unit.

2. Language deals with discourse as a correct, clear, elegant and energetic medium for communicating thought; while grammar deals with the sentence in its science aspect as to nature, definition, classification and relation; and in its art aspect as to correctness. Also, in the grammar lesson the mind is focused on the language, while in the language lesson the mind is focused in so far as possible on the thought to be expressed.

3. The main purpose of primary language is the *habit* of speaking and writing good English; the main purpose of grammar is mental training, or discipline. The subordinate purposes of primary language are, (1) to form a basis for grammar; (2) to give valuable knowledge; and (3) to give mental training. The subordinate purposes of grammar are (1) to form a basis for other language work; (2) to give knowledge valuable for guidance in speaking and writing.

It is thus seen that primary language is not identi-

cal with grammar in any of the three points in which subjects may be alike and different.

Composition and primary language are much alike, but not entirely so. They both deal with discourse in the process of making; they both aim at the habit of good English, but composition deals with written discourse, while primary language deals with both oral and written discourse, but emphasizes more the oral discourse. Primary language as a subject is a much more elementary and fundamental subject than composition and paves the way, and forms the basis, for composition.

Every lesson is in a sense a language lesson, if the best work is being done. But there is a difference between teaching, for instance, a nature study lesson for the purposes of nature study, and teaching a language lesson for the purpose of language, even though the facts dealt with in the two lessons are just the same.

Primary language should be regarded a separate subject in the school curriculum, and every teacher should differentiate it in his thought from the other subjects of the school course. A failure to do this leads to a lack of definiteness, and confusion of primary language with other subjects of the school course; also, to the attempt to teach primary language incidentally. And observation soon convinces one that doing work incidentally means slighting and neglecting it. Incidental work usually is not worth much.

Primary language must hold a *clear, definite* and *dignified* position in the teacher's thought and feeling

if the work of teaching it is to be conscientiously and well done.

Thoughts of a Thinker.—"It should be a pervading element in the whole school and home training of the young, to make them use their own tongue with accuracy and force." * * * "It is constant use and practice under never-failing watch and correction, that makes good writers and speakers; the application of direct authority is the most efficient corrective. Grammar has its part to contribute, but rather in the higher than in the lower stages of the work. One must be a somewhat reflective user of language to amend even here and there a point by grammatical reasons; and no one ever changed from a bad speaker to a good one by applying the rules of grammar to what he said."

This quotation from Professor Whitney, the greatest American grammarian, shows the nature of good primary language work in general. The following points from it are worthy of great emphasis:

1. Language work is the work of the *whole* school and home training of the child.

2. It is *constant* use and practice under *never-failing* watch and criticism which will do the work.

3. The application of *direct authority* is most efficient.

4. The application of the rules of grammar *does not* correct efficiently bad language habits.

Conclusions.—From the foregoing study the following conclusions concerning the nature of primary language lessons are deduced:

1. The child studies any object to get thought and feeling.

2. He communicates this thought and feeling in both oral and written discourse, narration and description in the main, with his mind focused on that of which he is thinking.

3. His language lessons must be almost entirely narration and description, in the language period.

4. His language must constantly be under never-failing watch and friendly correction.

CHAPTER XXIII.

STEPS IN LANGUAGE LESSONS.

General Steps.—Every language lesson is like every other one in that the following three steps must be taken:

1. The development of thought and feeling.
2. Stimulating to the communication of this thought and feeling.
3. Supplying the correct form when the communicating medium is lacking in any way.

These are the steps in every language lesson from the teachers point of view. Each is very important in language teaching and will repay a definite study.

The Development of Thought and Feeling.—This is absolutely the first step in all language teaching, and it is of the highest importance. Without thought and feeling to be communicated the learner has no need for a communicating medium—the language. Language—words, sentences and discourse—came into existence to communicate thought and feeling. So, according to the way language originated and according to the way the learner naturally uses language, the first step in language teaching is to lead the learner to get in mind some thought and feeling worth communicating and which he will want to communicate.

Importance of this Step.—As evident as it is that this is the first thing to do in teaching primary language, and as evident as its importance is, this step has not only not been well done, but the importance of it has not been generally appreciated by teachers of primary language. In fact a failure to develop thought and feeling sufficiently is the very rock upon which most teachers are shipwrecked in their careers as teachers of primary language. And the trouble comes about in the two following ways:

First, the teacher gets his eye so firmly fixed upon the idea that he wants to get the learner to use language that he is blinded to the fact that the learner not only does not desire to use language when he has no thought and feeling to communicate, but absolutely can not use coherent language. The teacher gives subject after subject to the learner and insists that he must say something either orally or in writing on these subjects. The learner knows nothing to say and has no feeling to communicate, except, perhaps, one of helplessness, and so produces no discourse at all or incoherent, framentary language of no worth. The teacher still urges the learner to say more, and as a result he comes to dislike the work, slights it and then neglects it for more pleasant work; the teacher puts on more pressure; the learner despises the work, and the whole thing is much *worse* than a failure. Many teachers have seen just this thing happen to classes in primary language and composition work.

Secondly, the teacher seems to think the quantity

of discourse produced is the criterion of success, and so demands so much written or oral discourse or both that the learner can not have time for the proper development of thought and feeling. The results are the same as in the first case: dislike for the work, neglect of it and bad student habits.

Mutual Cause and Effect.—Bad language and bad thinking are mutual cause and effect. Bad thinking is the cause of bad language and bad language is the cause of bad thinking. Very often the cause of bad language is to be found in the incoherent thinking the discourse expresses. If the thinking be fragmentary, inaccurate, and unsystematic, the language which is the formal expression of this thought, will partake naturally of these characteristics, and thus poor thinking produces poor language.

On the other hand, if one has a poor command of language, so much of his mind's energy will be required in getting the proper language forms that the thinking will suffer from not having the mind's full power upon it.

It can not be too thoroughly appreciated and too strongly felt by teachers of primary language that the first thing to do in all language teaching is to *direct the learner in thinking* in order that he may have thought and feeling in mind to express and which he desires to express.

Objects of Study.—In the selection of objects of study as a basis for the language lesson two general truths should guide:

1. The object studied must be well adapted to the mind of the learner; that is, it must not be too hard nor too easy, and it must be sufficiently attractive to arouse direct interest.

2. The object of study must be of such a character that it will be worth studying; that is, the study of it must give good mental training and knowledge valuable in living.

The first one of these truths is so evident that it hardly needs comment. If the language lesson is to possess life, vivacity and interest, the object of study must be one which the learner will like to study, and he will not like to study one which is either too easy or too hard for him. Neither can any language lesson be much of a success which is not vigorous and interesting.

The second one of these truths, though, needs further study in order that an error held to some extent may be corrected, and in order that the truth may be made emphatic. It has been asserted that the first object in language teaching is to get the learner to talk, and that it does not make very much difference what he talks about, just so he talks. And in pursuance of this idea pictures, foolish stories, etc., have been given to children to talk about and write about in their language lessons. To have children use language in this way is an error in primary language teaching, because there is an abundance of things which may be studied and which are worth studying and which may be used as a basis for the very best language lessons. The world is so full of interesting and valuable things to learn that

there is no excuse for studying anything for a mere mental gymnastic. Children have no need to be taught to talk for the mere sake of talking. The world is already too full of people who talk without saying anything.

In pursuance of the idea of studying some object worth studying as a basis for language work, language lessons may be made to correlate with the following:

1. Nature study lessons.
2. Concrete geography lessons.
3. Reading lessons.
4. Primary history lessons.
5. Primary literature lessons.
6. Lessons on form.
7. Biography.
8. Stories.

It is to be noted that in making any of these lines of work a basis for developing thought and feeling, the material of study may be made valuable in itself. This is a point in language teaching which should never be lost sight of.

Stimulating to the Communication of Thought and Feeling.—If the thought and feeling have been well developed, students will take this step by merely being asked by the teacher to state orally or in writing what they know on the topic. Merely asking the learner to do this is all the stimulating which will be required.

But the question, Why have so many students disliked their language work and their composition work? is a pertinent one in this connection. Teachers almost

everywhere are aware that in many places students in large numbers dislike their language and composition work. It can not be because students dislike to talk and write, for the human being has a natural impulse which urges him to communicate his thought and feeling. That is to say, he has the instinct of expression. Thus communication is natural and pleasurable, when the mind has thought and feeling to communicate. But it is unnatural and disagreeable to try to use language when there is nothing in the mind surging for expression.

Thus that which has made the language and composition lessons disagreeable to the learner has been the following:

1. A failure on the part of teachers to lead the learners sufficiently to develop thought and feeling.

2. The demand for too much written or oral discourse.

3. A failure on the part of the teachers to make the study of something interesting and valuable the basis of the language or composition lesson.

It is safe to assert that, if students are led by the teacher to study something interesting until it is *well known,* it will not be disagreeable to them to express their thoughts either orally or in writing. For such work to be disagreeable would be unnatural. It is natural, and, therefore, agreeable to communicate our thoughts.

Supplying the Correct Form When the Communicating Medium Is Lacking in Any Way.—This third step in all language teaching is one of much importance,

and is worthy of careful consideration. It indicates something of the importance of this step to show that it is the distinctive language-learning step in all teaching and in all life. The little child who is first learning to talk depends upon father, mother, brother, sister or companion for the language forms to express his ideas. These forms they give him, and this act of giving under these conditions constitutes ideal language teaching.

In a sense, every lesson in any subject whatever in school must be a language lesson. That is to say, in any lesson in school work bad language must not be passed by without attempt at correction. The use of good language is to be made a *habit* as nearly as can be. But if the learner be held to the use of good language only during the period of daily recitation in language, some fifteen or twenty minutes in length, and be permitted to use indifferent or bad language during the remainder of the time at school and at home, as is the custom in most cases, he will never acquire the *habit* of using good language. The tendency or ability gained during the recitation in language, under those circumstances, will be constantly antagonized and overcome by the counter tendency established during the time he is not in the language recitation.

The bad language habits which children are permitted to form in the home and from their companions out of the home make the problem of successful language teaching in our American schools a most difficult one.

If the child could always hear and see pure lan-

guage both in school and out of school the problem of successful language teaching would be greatly simplified. Some have even thought that under those circumstances the learner would always use pure language, and that there would be no need for language lessons. Such though would probably not be the case. The child's always hearing or seeing pure language would not be a guarantee of his always using pure language. Children make logical mistakes in language, which become habit with them, and which would have to be corrected. They also invent language forms not logical and incorrect which become habit and must be corrected. For instance, a little four-year-old having heard his parents say, "We aren't going" said, when asked if he was going, "I am'nt going." Another formed the habit of saying, "Big large" for large.

Again, while the language lessons must be predominantly oral for at least the first eight years of the learner's school life, he must also be taught to communicate his thought and feeling by means of a written medium; that is, in written discourse. In this work many, indeed most, of the errors are errors of omission rather than of commission. So however pure the language is which the child is accustomed to see and hear, these logical errors, and peculiar habits of oral language, and the errors both of omission and commission in written language will have to be corrected by language lessons.

The view that every lesson should be made a language lesson, in the sense that errors in language should

never pass by without attempt at correction, has been criticized on the ground that every subject is thus subordinated to language. The point is not well taken, because it is a necessary part of the teaching in every subject to teach the learner to express his knowledge of that subject, and to do so in good language. The mastery of any subject consists of three things: 1. The understanding of the subject. 2. Fixing it in mind. 3. The ability to express it in good language.

Thus it is an integral part of the mastery of the subject to be able to express one's thoughts of it in good language. And the very demand for good language contributes largely to accurate and ready thinking. Thus in holding the learner to the use of good language in every school subject the teacher is not at all subordinating every subject to language.

Corrections.—Since so much of the teacher's work in teaching language lessons consists in making corrections and in supplying language forms, a careful study of the *when,* and *how* of corrections is of great importance.

The language lessons throughout the language period in the learner's life are rightly to be predominantly oral, so the corrections will most be those of the child's oral language.

In regard to these errors some have thought and have vigorously asserted that errors should not be corrected as soon as made, but that attention should be called to them at the end of the recitation. But three reasons are urged for this procedure: 1. It does not

embarrass the learner. 2. It does not break up his continuity of thought. 3. It does not develop an abnormal self-consciousness.

The opposite of this, making the corrections as soon as possible following error, it is claimed, does (1) embarrass; (2) break up the continuity of thought, and (3) develop an abnormal self-consciousness.

Experience teaches, however, that if the correction is made in the right spirit, and if the learner is trained to understand it so, the correction may be made immediately without doing any of these three things to a harmful degree. If any of these alleged evils occur, the teacher will do well to look to the spirit which exists between him and his pupils, for the source of the evil will be found to be there. The manner, and the spirit of the correction and the feeling existing between teacher and learner control this problem.

Of course, if Mary should say, "He come yesterday," and the teacher should scream out, "Stop, Mary! Can you not use better language?" the continuity of thought would be broken up, and Mary would be embarrassed and made too self-conscious. But if, when Mary makes the error, the teacher gently says "came" or "He came yesterday" and Mary repeats, using the correct form and goes on with the recitation, the continuity of thought will not be broken, Mary will not be embarrassed and made self-conscious to any harmful degree.

Since the objections to making the correction as

soon as possible after the error do not hold, the following reasons for doing so suggest themselves:

1. It is the only way to make the correction effective enough.

2. It avoids looseness of criticism.

3. It tends to subordinate the language to the thought.

In order that the correction may be as effective as possible it should be made so that the correct language form could be united in the same experience with the thought to be expressed while the thought is intense. If the correct form is not given the incorrect form will be united with the thought in its greatest intensity, and thus most strongly welded with it. After the thought has lost its initial intensity no form either correct or incorrect can be so strongly welded to it. It is much like striking the iron when it is hot. For this reason there should not be delay of correction longer than is unavoidable.

Postponement of correction almost inevitably leads to looseness of criticism. The error passes from the teacher's mind in the absorption of the recitation and is forgotten. This is unavoidable to some degree if correction is left for the end of the recitation.

One of the difficulties of primary language teaching is that the learner learns poorly to use language correctly by studying the language. Everything possible should be done to have him acquire a good language habit indirectly; that is, with his mind focused on the thought and not on the language. To wait for the end

of the recitation and then call his attention to the form is to focus his attention on the language, but to get him into the habit of picking up the correct form in the midst of his thought tends towards the mastery of the language while he is mentally absorbed in the thought he wishes to express. In the most skillful teaching the corrections in oral primary language work will be made as nearly immediately after the error occurs as possible.

In the written work some time must of necessity elapse before the errors can be corrected. The criticisms in written language must be very carefully and very conscientiously made, however. They must be made in such a way that the learner's attention will surely be called to them. It is sometimes a good plan to call for a second writing, or even a third, of the production, with a view to improvement in the language. This will call attention to all corrections. A place should be reached in the work which will warrant never permitting an error in language to go by without having it corrected.

To criticise in a helpful way is an art. Teachers frequently fail in their language and composition work because of weakness in criticism.

There are cases in school of students who have such bad language habits that almost every other word is an error. These are neglected cases, of course. To correct every error such students make would be overwhelming. In such cases it is best to study their errors, classify them, and begin on a few of the worst. After these

have been eliminated to some degree, others should gradually be taken up till a place is reached which will warrant the teacher's having every one corrected.

And let it be remembered that nothing short of everlastingly keeping at it will bring large success. Most teachers are appallingly negligent of their children's language in all recitations except the language recitation. This point of bad pedagogy can be and should be gotten rid of in all school work from the kindergarten to the university.

Points to Be Kept in Mind in Language Teaching. —The study up to the present place may be summarized in the following points, which are worth keeping in mind:

1. The main distinctive purpose of language lessons is to lead the learner to form the habit of using correct, clear, elegant and energetic language in communicating his thought and feeling.

2. A secondary distinctive purpose of language lessons is to give the learner an adequate basis for the grammar work to be done later.

3. Language lessons in common with other subjects have it as their purpose to give the learner knowledge valuable for guidance in right living.

4. Language lessons in common with other subjects also have it as their purpose to furnish the learner mental discipline to the end of accurate and ready thinking.

5. Language lessons should be in harmony with the following principles deduced from an analysis of

the mind's natural way of learning language and of using it:

a. The language lesson must correlate with the learner's life.

b. The learner best acquires a mastery of language by dealing with it with his mind focused, in so far as possible, on the object of thought.

c. There is a distinctive language period in the learner's life in which he learns language as readily as he learns to walk. This period is, in general, from the time he begins to talk up to the age of thirteen or fourteen. If the learner does not acquire, to a large extent, the use of good language in this period, he either never will do so or will do so at great cost and with much difficulty.

6. Eternal vigilance in kindly correcting the learner's language is the price of good language habits.

7. In general in all language teaching the steps are as follows:

a. Developing thought and feeling.

b. Stimulating to the communication of this thought and feeling.

c. Correcting kindly and sympathetically all errors.

Concrete Illustrations.—Under this heading some illustrations of what language lessons should be, in the light of the previous study, will be studied.

The Blue Violet.—This lesson is adapted to children of the second or third school year, and is based upon Nature Study work. The time of year is the

last of March or first of April in this latitude. The lesson is entirely oral.

The questions by the teacher are to bring out the discussion concerning the life of the blue violet. The children have been stimulated to watch for the coming of violets.

What kind of home has your little violet? Does it live in dry ground or wet ground? Is its home in the sunshine or in the shade? Does it live in the woods or in the field? Have you seen any blue violets in other places?

How did you know where to look for little violet? Was it there all winter? Could you see it in the winter? Why could you not? Did Jack Frost kill all of the plant? Why could he not kill the root? How could the soil, leaves, and snow keep the frost from killing little violet?

What part of little violet could you see first this spring? Why should the leaves come up first?

The teacher here tells the children that the leaves protect the flowers. They stand up around the flowers like a row of little soldiers. They are, also, the kitchen where the food is prepared for the whole plant, flowers and all.

Where does the little violet get its food? How do the roots get it from the ground? Do the little roots have mouths? Can you see the mouths of the little roots?

The teacher here may show how roots eat by show-

ing how they could take up salt, soda, or sugar dissolved in water.

How does little violet get the food up to the leaves? How could the stem and leaves draw it up? What do the stem and leaves draw it up for?

What must be done with food in the kitchen before it is good to eat? Where do the leaves get heat to cook the food which they have drawn up from the roots? Could the little leaves get along without the sun? Why could they not?

When your mother cooks what do you see rise from the cooking food? What makes the steam rise?

Here the teacher may explain to the children how the steam rises from the leaves when they are preparing food. This may be shown by putting a plant under an inverted glass tumbler, and showing the moisture which collects.

How did the moisture get out of the leaves? Can you see the little windows?

The teacher here tells the pupils that air goes through these tiny windows and mixes with the food before it is good to eat.

While the roots and leaves were working away, what was the little flower doing? How did it look when you first saw it? What happened to the little green cloak before you could see Violet's dress? Would you like to know what name the pieces of her dress have? Can you remember that they are called *petals?* How many petals has Violet's dress? See if the petals are all of the same size and shape. Who can find a pocket in one?

What is in the pocket? Taste it and see. Honey? It is called *nectar*. What do you think the nectar is there for? Can you think of anything that would like to eat it? Bees? Butterflies?

At this place the teacher may explain that the bees come to the violet to get the nectar, and that the bee thrusts its long mouth down into the pocket of the petal in doing so. In doing this he gets flower dust (pollen) on his head and long mouth. This pollen is to feed the tiny seeds so they will grow. The home of the seeds may be examined and explained and the process by which the pollen comes into contact with them. This work must be done with the flowers in the hands of the children.*

Enough has already been suggested for several lessons for second year pupils, but the work may thus be carried on through the entire life history of the violet.

The questions only are here given, but the inference is easily made as to the nature of the work on the children's part. *They engage in a free, open, interesting and spirited talk.*

The adaptation of this lesson to do the three following things is evident:

1. The development of thought and feeling.

2. The inducing of the children to express this thought and feeling.

3. Opportunities for quietly and kindly giving correct language forms, since the children in such interesting discussions are likely to make errors of language.

This lesson has the following to commend it:

1. It correlates with the learner's use of language in life both before and after his school days.

2. He is learning to use good language with his mind engrossed with the object of thought.

3. He is fixing the habit of using correct, clear, elegant and energetic language in expressing his thought and feeling.

4. It gives good exercise in systematic thinking to the end that the learner may become an accurate and ready thinker—mental discipline.

5. It gives the learner knowledge valuable to him in life.

The lesson is oral throughout and so does not aim directly at correct habits in written language. Neither does it aim distinctively at laying a basis for the study of grammar.

Indian Corn.—This lesson on Indian corn is adapted to fifth or sixth year pupils, and could best be taught near the beginning of the fall term of school. The corn plant is before the children for observation, and in response to the teacher's questions, they give, for illustration, we will say the following answers, which the teacher writes on the board.

On the plant as a whole:

1. This corn stalk looks like a big stalk of grass.

2. It is seven and one-fourth feet high.

3. There is a central axis from one and one-half inches in diameter to less than half an inch.

4. It has a bushy-looking brush at the top which is called the tassel.

5. The central axis is called the stem or culm.

6. It has a bunch of roots at the lower end of the culm.

7. The tassel crowns the culm.

8. The culm has streamer like blades on opposite sides of it.

9. This plant has eleven leaves or blades.

10. The whole plant is green tinged with yellow in places.

11. This plant has two ears, one on each side of the culm.

12. Silk-like hairs stream out from the end of the ears.

13. The hairs and the tassel are the flowers of the corn.

14. The parts of this corn plant are the culm, the roots, the tassel, the leaves, the hairs and the fruit.

On the culm:

1. The culm is about seven feet long.

2. The culm is largest at the bottom and gradually grows smaller toward the top.

3. The culm stands upright.

4. It is the supporting part of the plant.

5. The culm is nearly cylindrical in form.

6. At distances of from five to seven inches on the culm there are nodes.

7. The nodes are thicker parts and denser parts of the culm.

8. The culm is pithy within.

9. There is a thin woody layer around the pithy in-

side. This woody layer is very dense and hard. It gives strength and firmness to the culm.

10. The parts of the culm between the nodes are called internodes.

11. The internodes have semicircular grooves, one for each node.

12. The grooves are on alternate sides of the internodes.

On the roots:

1. The roots are cylindrical in form.
2. They are of two kinds—fibrous and coarse.
3. They grow out from the nodes.
4. They are arranged in circles around the bottom of the culm.
5. They have two uses; one is to take food from the soil, and the other is to anchor the plant.
6. The roots of the highest circle are large, strong, and form bench-like braces to hold the plant upright.
7. There are twelve in the upper circle.
8. The circles below do not have so many.
9. There are five distinct circles on this plant.
10. They are almost white.

Enough has been given to indicate the nature of this kind of language work. But in the actual language teaching, the tassel, the leaves, the flower and the fruit would be treated in a way similar to the treatment of the plant as a whole, the culm and the roots.

As much may be done each day as the time of the recitation will permit. As the students give the points the teacher writes them on the board. Then the stu-

dents copy them neatly in note books. After dealing with the whole plant in this way, the students are shown that what they have (1) on the plant as a whole; (2) on the culm; (3) on the roots; (4) on the leaves, etc., is not in a readable form. They then are asked to put it into a form so it will read smoothly. That on one of the points, the culm for instance is usually enough for one lesson. The work as the students have it is read in the class, carefully corrected by the teacher and returned to the students, and kept by them. After having gone through the points thus, the students are asked to write out the whole, noting carefully the corrections previously made on each part.

The following points should be seen in this kind of language work:

1. It teaches the learner how to make his language coherent, how to *compose.*

2. It teaches in a natural way how to paragraph, this lesson naturally falling into seven paragraphs: (1) the plant as a whole; (2) the culm; (3) the roots; (4) the tassel; (5) the leaves; (6) the flower; (7) the fruit.

3. It is a description, for it deals with a particular object as to its co-existent attributes and parts.

4. It is in harmony with all of the principles of language lessons previously studied.

5. It helps to carry out all the purposes of language lessons except that of laying a basis for the study of grammar.

6. There is material indicated here for fifteen good language lessons.

Language lessons of this kind have been given to children with striking success. Thus such lessons have both theory and experience to attest their value. *There are no better primary language lessons possible.*

Imaginative Lesson.—The following kind of lessons is valuable to vary the work and is in harmony with the principles of language lessons for the most part:

Two boys and a little girl were picking white clover flowers along a road. They came to an open gate which led to a beautiful lawn where there were many clovers. The children went in and were gathering the clover blossoms when there rushed at them a great, savage dog. Finish the story by telling what you think happened.

Once a boy about twelve years old, with his dog Jack, went fishing. As they were coming home across a large pasture field, the father of a flock of sheep chased the boy and butted him down. Each time the boy would try to get up, the sheep would knock him down. Jack, who was lingering along behind, saw his master's plight, and came rushing up. Finish the story.

Laying a Basis for Grammar.—Another kind of language lesson which has for its distinctive purpose to lay a basis for grammar work is the following:

It came in on the train yesterday.

Just what do you know about the thing which "It" makes you think of in this sentence? What enables you to know this about it?

The five horses were in the field eating their breakfast.

Just what do you know about the number of horses mentioned in this sentence? What in the sentence enables you to know that?

These are assignments given to the class before recitation. In the recitation in the second case the children should see, or be led to see that there are more than one horse, and that is all that is known by the form of the word "horses." "Were," also shows the same point. The same thing is also shown by "their." "Five" shows that more than one is spoken of, but also shows just how many.

Such lessons as these have the following points of merit:

1. It gives the children something to think about so as to develop thought and feeling.

2. They use oral language under the stress of thought and feeling, and thus give opportunities for correcting errors.

3. They are learning to discover the exact shades of meaning, or relation, of a term in the sentence, which is the best basis for grammar work they can possess.

* The lesson on the Blue Violet is adapted to some extent from McMurry's Special Method in Science.

CHAPTER XXIV.

ERRORS IN TEACHING PRIMARY LANGUAGE.

Prevalence of.—Primary language teaching is yet very poorly done in most of the schools. Thus errors in the work are very common. The following is a list of the more common and flagrant ones:

1. Making language lessons a kind of primary grammar work.
2. The teaching largely of principles in the light of which the learner is expected to use good language.
3. Insufficient development of thought and feeling before asking for expression.
4. Bad selections of objects for study.
5. Negligence in criticisms.

In the nature of things primary language lessons which are nothing but a sort of grammar work can not do much toward giving the learner good language habits. The work is too abstract and difficult for the learner to learn enough grammar to apply grammatical principles to his speaking and writing while he is in the language period. But even if he could learn grammar it would help him very little in acquiring good language habits. The reasons why this is true have previously been discussed. Primary grammar lessons are all but worthless as an exercise for fixing with the learner *habits* of good language.

No child ever naturally learned language by rule. In the development of a language in the life of a race, the language itself precedes the grammar of the language by many thousand years. The order is, first the language then much later the rules. So it is in the learner's life; first, the language then the rules. This is nature's order. Thus to attempt to teach the learner rules and principles is to attempt to violate nature's order, which is as a rule very bad pedagogy. In primary language teaching it is so bad that not only the desired result will not be attained, the habit of good language, but some unfortunate ones will accrue. Some of these are arrested development and antipathy for the work.

Perhaps the most common error in primary language teaching is insufficient development of thought and feeling. Almost everywhere teachers may be found asking children to talk on this subject and that subject in the absence of any thought and feeling in their minds to express. They are likewise asked to write on subject after subject when they have no thought to express, and of course can not produce coherent language. It is not only absurd, but positively idiotic to ask children to talk or write on a subject without seeing to it that they have some knowledge to express and which they desire to express. All language lessons are sure to be failures unless faithful care is given to the development of thought and feeling.

Objects of study for language lessons may be poor in several ways. First, they may not be of themselves

interesting to the class. Secondly, they may be too hard or too easy for the ability of the class. Thirdly, they may not be worth studying.

If the objects studied are not directly interesting, there is danger that the lesson will drag and become a bore to both teacher and pupils. Such work is disagreeable and likely to be profitless.

If the object of study is too easy the children will have the feeling that it is trifling. If it is too difficult the children will not be able to do much with it and will have the feeling of discouragement. This will paralyze endeavor.

If the object is not worth studying there will be a waste of time and energy. And the lesson may degenerate into mere juggling of language terms in which the student learns to talk without saying anything.

Negligence in criticism is an error in language teaching far-reaching in its effects, and a common one. Instead of most teachers holding their students to good language in the various school subjects, most do little or nothing in that direction outside of the language recitation. One can go into the recitation rooms of the university, the normal school, the high school or the common school almost anywhere and find work on the board abounding in errors of language to which no attention has been given. One can go into the recitations in the university, the high school or the primary school almost anywhere and hear errors in the oral recitation work which pass by unnoticed by either teacher or learner, apparently.

Such teachers frequently, when attention is called to this negligence will say they are not teaching language and that they have no time for such things. But such reasons are not valid and show something radically wrong with the teacher's thinking as well as with his teaching. It is a certainty that the teacher who knows what education is, who has the best interests of his students at heart, who is careful, and who is conscientious will *constantly* watch up his children's language. Not to do so is to neglect one of each teacher's highest duties to those whom he teaches.

CHAPTER XXV.

THE SUBJECT-MATTER OF HISTORY.

Nature of History.—One's idea of the nature of a thing always determines his attitude of mind toward that thing. And his attitude of mind determines to a large degree how one acts toward anything. Thus one's idea of the nature of history will determine largely how he will teach history. Thus it is of first importance to the student of method in history that he have a correct idea of the nature of history; that he have a correct idea of what history actually is.

One's general idea of history is his *concept* of history. It may contain part of the elements that go to make up the right idea of history and may exclude part. It may contain elements that should be included in the concept of history and no more; that is, one's concept of history may be right, partly right or wholly wrong. The student of method in history is in much need from the very start of having the most helpful concept of history. It will serve as a guide to him all through his future study of method of history.

Different Views of History.—There have been different views of what history is held from the time of Herodotus, the father of history, down to the present time. Those held at present may for our purpose here be put as follows:

1. There is a view that history is *the record of events.*

2. There is a view that history is *the events themselves.*

3. There is the view that history is *the ceaseless change in the life of a people.*

The Record of Events.—The first view, that history is a record of events, is too superficial for much help either to the student of history or to the student of method in history. It is the view of the unthinking, undoubtedly.

According to this view a people whose records are all destroyed would have no history, or a people who left no records would have no history. Or again if the records of a people are destroyed its history is destroyed.

All the records left to us of the Mound-builders are the mounds and a few utensils and ornaments scattered over different parts of the country. According to this concept of history these mounds, utensils and ornaments constitute the history of the Mound-builders.

There certainly was and is something in the life of every people which may better be thought of as history than the records, and the study of which will prove more helpful to the learner than the study of records. In truth only a small part of the ceaseless change in the life of a people is ever embodied in records.

Those students are to be pitied whose teacher has no more comprehensive and helpful concept of history than that it is a record of events.

The Events, the History.—The concept of history, that the events themselves are the history, is better than the concept previously studied, but is not satisfying to the mental hunger of the thinker. It, too, is more or less superficial.

Events, from *ex, out* and *venio, I come* are those things which come out. Thus the events of man come out of something, and it is that from which they come which is more fundamental than the events.

There is change, movement, progress in the life of a people and this change is first in time and first in importance a mental, or spiritual, change.

Events are the physical or external manifestations of this spiritual change in the life of a people. This spiritual change always precedes the events and in history is much more fundamental than the events; and no event can be well understood except as it is seen in its relation to the spiritual movement in the life of the people.

The concept of history, that the events are the history, is too narrow and emphasizes the less important, the events, thus tending to cause its possessor to lose sight of the thing of utmost importance, the spiritual progress in the life of the people.

This is thus not an adequate concept of history either for the student of history or for the student of method in history.

History, a Ceaseless Change in the Life of a People.—The concept, that history is a ceaseless change in the life of a people, is the concept of the student and the

thinker. It is wide in scope, including all there is to be known in the life of a people. It is deep in intensity, leading the learner into the fountain sources and the mainsprings of all human endeavor.

This concept includes both the events and the spiritual change in the people's lives, for the ceaseless change in a people's life is both spiritual and physical.

This is the only concept of history satisfying to the mental hunger of the one possessed of the passion for historical truth. It is the only largely helpful concept of history, and the only one which should be held by the student of history, and especially by the student of method in history.

Definition of History.—The ceaseless change in the life of a people is always a conflict, or struggle, for higher life. It may be the struggle for material wealth, an *economic* struggle; it may be the struggle for more knowledge, an *intellectual* struggle; it may be the struggle to satisfy the hunger for the beautiful, an *aesthetic* struggle; it may be for the betterment of social conditions in the family, church, state, and school, a *social* struggle; it may be a *moral* struggle or a *religious* one. But it is always a struggle in some form for more life, for higher life; that is, a life fuller of the possibilities of life, a life fruitful and intensive in all that gives integral self-satisfaction, the highest degree of happiness.

This struggle of the race is shown by events to some degree and in part known from records. The events grow out of and manifest the spiritual part of the strug-

gle, but the struggle is both spiritual and physical. Since an event is a change which has pretty definite limits, it would hardly be accurate to say the events manifest the physical part of the struggle. The events are the physical part of the struggle.

Only a small part of the struggle of the human race for higher life has ever been or can ever be recorded. But part of it may be known from records, using the term, record, in its broadest sense as including ruins, architecture, paintings, sculptural works, writings, etc. Most of the hopes, aspirations, sorrows, disappointments, anguish and tragic events as well as the every-day, commonplace affairs in the struggle of a people are lost to us and can only be inferred or imagined.

The conclusion from the foregoing discussion on the nature of history gives the following definition of history:

History is the struggle of a people for higher life as manifested by events to some degree and in part known by records.

'History is the accumulated experience of the race.'' —Judson.

''*The change, the movement, the progress* which occurs in the life of a people is that people's history.'' —Kemp.

''History is the evolution of civilization through institutional forms in a nation's life.''—Hoover.

Historic Forces.—A historic force is anything which in any way affects the struggle of a people for

higher life. It may intensify the struggle; it may lessen its intensity; it may retard the struggle or it may accelerate it; it may postpone it or it may hasten it. And it may shift the intensity from one phase to another. It does not matter in what way the thing affects the struggle; if it affects it at all it is a historic force.

Classes of Historic Forces.—Historic forces are of two classes: 1. Spiritual forces. 2. Physical forces.

The following are spiritual historic forces: 1. The instinct to progress. 2. Traditions. 3. Ideals. 4. Songs. 5. Scientific truths. 6. Laws. 7. Creeds. 8. Isms.

The following are physical historic forces: 1. Climate. 2 Soil. 3. Coast line. 4. Mountains. 5. Rivers. 6. Natural productions. 7. Canals. 8. Railroads.

Instinct to Progress.—It is inborn in man to want to better his condition. He is unwilling to live no better than his ancestors did. If this had not been true we would have had no science and philosophy; no religion and art; no constitutions and laws; no steamboat, no railroad, no telegraph, no telephone, no bicycle, nor no automobile. This desire for progress is man's most deep-seated and characteristic trait. It differentiates him from God and the animals.

> "Progress, man's distinctive mark alone,
> Not God's, and not the beasts'; God is, they are,
> Man partly is and wholly hopes to be."

No other historic force is so largely influential in making history as this one, the instinct to progress.

Traditions.—Tradition is from *trado, I hand down.*

Those customs, precepts, proverbs, and superstitions which have been handed down from one generation to another are traditions and are historical forces. The lives of people are influenced by tradition in every way to such a large extent that one is astonished to learn for the first time how little new each generation adds. Nearly the whole body of language is tradition. Religion is almost wholly tradition. In the United States the Monroe Doctrine is a tradition.

Ideals.—An ideal is anything which has no actual existence except in the mind as an idea. A government in which all who live there could obey all the laws and be happy is an ideal. It has no actual existence except in the mind as an idea.

An independent country in which all are free to do right, and are equal in opportunity was an ideal to the colonists of the United States. This is what they struggled for in the American Revolution. That it was a potent historic force is evident.

Songs.—A song may be a historic force. Especially is this true of national songs and songs which have become the symbols of some thought around which clings strong feeling. There is something about such songs which inspires, quickens the step, and prompts to resolution and deeds of valor and heroism. Of such are Dixie, America, Fatherland, God Save the Queen, Star-Spangled Banner and Yankee Doodle.

Scientific Truths.—Scientific truths frequently change in many ways the struggle in the life of a people. The scientific truth that tuberculosis is a disease

caused by a germ and is contagious is a truth which has had much to do with laws for its prevention, the building of sanitaria and hospitals.

The scientific truth that gold ore of a low grade could be worked at a large profit by the cyanide of potassium process has a very close connection with the money question not only in the United States but in the world as a whole.

Laws.—As an illustration of a law which was a potent historical force the Fugitive Slave Law is good. It is closely connected with the secession of the southern states, the Civil War, Lincoln, Emancipation Proclamation, etc.

Other illustrations are the Stamp Act, and the Tea Tax, which so intensified the spiritual struggle in the lives of the colonists.

Creeds.—The belief in a personal God, and that he created and providentially governs the world for man combined with current thought on this subject is a *creed.*

As illustrations of creeds which are historical forces those of the Presbyterian and Methodist churches are good.

Isms.—Any traditions regarding the origin, purpose and destiny of man combined with current thought on these questions is an *ism.* Good illustrations of isms which have been historical forces are Puritanism, Hedonism, and Epicureanism.

Climate.—Climate is the condition of any place with regard to heat and moisture. The climate of the

south was such that cotton was a profitable product, and such that the Negro thrived there. These two things and others made slavery profitable in the south. The slave question was an issue over which the struggle grew intense both spiritually and physically between the northern section of our country and the southern.

Soil.—Soil is in general the "thin layer of surface earth that, like some great blanket, is tucked around the wrinkled and age-beaten form of our earth."

The soil of the Mississippi valley is so fertile that a portion of this region is called the granary of North America. Here great cities spring up and here will be the home eventually of the most populous societies in the United States. In these cities will be found the great rushing, throbbing, struggling masses of humanity. Here the hardest problems of government, schools, churches and business are to be worked out.

Coast Lines.—The coast line of a country influences the history of a country. If the coast line be regular, there will be few harbors and places for the landing of boats and steamships. Commerce will be less, coast cities will be few, international intercourse will be lacking and the growth of the civilization of the people much slower. Thus coast line affects the struggle of a people for better life and this makes it a historic force.

Mountains.—Mountains are barriers to commerce and travel, and commerce and travel are part of the ceaseless movement in the life of a people. Mountains thus hinder this movement and are historical forces.

For a long time in the history of the United States the Appalachian Mountains walled back immigration to the Ohio, and Mississippi valleys, and kept the growth of civilization confined chiefly to the Atlantic states.

Rivers.—Rivers furnish routes of commerce and travel; they furnish power for manufacturing and other industries, and water for irrigation; also, outlets for drainage. These things contribute largely to the ceaseless movement in the life of a people. They affect the economic aspect of the struggle—the production, the preparation, and the distribution of material wealth.

Natural Productions.—Natural productions are grains, fruits, vegetables, game, fish, timber, stone, coal, lead, copper, silver, gold, etc. Where these are found or may be produced in considerable quantities, societies, villages, towns and cities spring up. These bring churches, schools, newspapers, libraries, museums, parks and all other institutions of civilized life. Here every aspect of the complex struggle of a people for higher life will surge full and strong. Natural productions are thus among the most potent of historical forces.

Canals.—Canals, like rivers, facilitate commerce, travel, sanitation and irrigation. All these help people in their efforts to live better lives.

Among noted examples in the United States are the Chicago Drainage Canal and the Erie Canal. The first connects the Great Lakes with the Mississippi River, and the latter was the means by which the produce from the Great Lakes region and the rich Mohawk valley was transported to the sea.

Railroads.—Railroads are the greatest means of commerce and travel possessed by a people. Where they go civilization is sure to follow, if the climate and soil will support a civilization. Through the agency of the railroads material wealth is exchanged. The products of one part of the country when produced in excess are transported to another where they are consumed. Thus the economic struggle of a people is changed from a simple one to a complex one by railroads.

Large inland cities could hardly arise without railroads. They could hardly do so, for the necessities of life could not without great difficulty be obtained.

Elements of the Historical Concept.—The ceaseless struggle of a people for higher life has been seen to be the history of that people. An analysis of this concept of history will reveal the following points:

1. The spiritual growth in the life of a people.
2. Events.
3. The events as manifestation of this growth.
4. The events as the cause of this growth.
5. The events as the effect of this growth.

The spiritual struggle of the people has always resulted in growth in some way. Of course there have been retrograde movements in history spiritually and physically. The march of progress has been zigzag. But even in the zigzag movements of the struggle growth in some way is always discernible, and in the end the human race has advanced spiritually.

Events have before been seen to be those physical

changes with more or less definite limits, which come out of the spiritual struggle. Thus the Boston Tea Party, and the sinking of the Maine were events in history.

There is no way for one to know the growth in the life of a people except by the events. Thus events are the manifestation of the growth in the life of a people.

The growth in the minds of the people of the idea of equality is manifested in the Declaration of Independence, the election of Lincoln, the Emancipation Proclamation, the victory of the North at Appomattox, and the Thirteenth, Fourteenth, and Fifteenth Amendments to the Constitution.

Events in history cause growth in the life of the people. The persecution of the Quakers in Massachusetts caused the growth of religious tolerance. The invention of the cotton gin caused a growth in the sentiment of the people regarding slavery. The Boston Tea Party caused a growth in the determination of the colonists to resist what they regarded as the unjust attitude of England toward them.

The events are also the effect of the growth in the spiritual struggle of the people. The Declaration of Independence was an effect of the thought and feeling in the minds of the people that so long as they remained subjects of the mother country freedom for the enjoyment of equal opportunity would be restricted.

The Emancipation Proclamation was an effect of the growth of the thought and feeling against slavery in our country.

Subject-Matter.—It is to be remembered that the subject-matter of any subject or lesson is the *material of study* in that subject or lesson; also, that every subject-matter consists of two things: (1) some facts; (2) some relations of these facts.

The facts to be studied in history are (1) the events; (2) the spiritual struggle in the life of the people. These two things are the obtrusive facts in the life of every people, and no people ever has existed as a people without these two things having constituted the concrete realities of their individual and national existences.

The relation in which these facts are to be studied or taught in history is threefold: 1. As manifestation. 2. As cause. 3. As effect.

The events manifest the spiritual struggle in the life of a people. Without events there would be no way for us to know the spiritual struggle through which the race has gone. But by learning the events we are able to infer what the spiritual struggle lying back of them must have been. Thus the spiritual struggle is known to our minds; that is, manifested to them.

The events are the cause of the spiritual struggle, too. They cause conflicting opinions, feelings and mental efforts not only in the minds of individuals but between the minds of different individuals acting singly or in groups. Thus events in history have a second historical relation.

Again the events are the effects of the spiritual struggle in the life of a people. Any struggle in the spiritual life of a people which becomes intense enough

will burst forth in events sooner or later. These events are the effect of the struggle in the mind of the people. Thus events in history have a third historical relation.

From this study the following statement of the subject-matter of history is reached:

The subject-matter of history is the events of man as manifestation, cause and effect of his spiritual struggle for higher life.

This statement for the subject-matter of history shows that one who learns history must master (1) the events of man; (2) the spiritual growth of the race; (3) the triple relation existing between these two.

An Organizing Principle.—Every subject in the school curriculum which may rightly be called a separate subject has some central truth in it which organizes it. The facts in the subject cling around this central truth like the grape berries of a bunch cling to the stem. Each fact of the subject instances the organizing principle of the subject, and can be fully understood only when it is seen to do so. The organizing principle gives order, system and continuity to the subject. Without it facts are almost worthless, since they, isolated and disconnected, are unusable.

The organizing principle of any subject is a *relation.* It is the relation of the facts in the subject-matter. This may be seen from the following: the facts of the revolution of the earth around the sun might be studied in either of the two subjects, astronomy or geography, but not in the same relation. If they were studied in relation to the movements of the solar system

as a whole, the study would be a lesson in astronomy. But if they were studied in relation to their effect on the distribution of relief forms, climate and life upon the earth's surface, the study would be a lesson in geography. This would be because the organizing principles of astronomy and geography are different.

History has its relation in its subject-matter and so has its organizing principle. It is the triple relation between the events in history and the spiritual struggle of the race for higher life. The following is the formal statement for it: *The organizing principle of history is the triple relation of manifestation, cause and effect between the events of man and his spiritual struggle for higher life.*

Value of the Organizing Principle.—The value of the organizing principle of any subject to the teacher and the learner can not well be overestimated. It does the following desirable things:

1. It gives the right viewpoint in the subject.
2. It enables one to grasp the subject as an orderly whole, and to see the end from the beginning.
3. It tends to systematic, logical habits of thought.
4. It enables one to remember facts in a perfectly natural and rational way.
5. It stimulates to interest, and economizes time and energy.
6. It makes work definite and specific, and prevents scattering, superficial work.

The Functions of the Organizing Principle.—In history the organizing principle has at any rate four

functions, as follows: 1. A selective function. 2. An interpreting function. 3. An emphasizing function. 4. A dividing function.

The Selective Function.—The current of human history flows so wide and deep that no one in a life time can master it in full. There is too much of it. Thus there must be a selection of the material of study in history. The organizing principle of history enables the teacher or learner to do this rationally. In the light of the organizing principle of history, *those things will be selected for study which manifest, cause, and are the effect of the spiritual struggle of a people for higher life.*

Usually in the past the selection of historical material for study has been determined by the text-book. That is to say, teachers have not been self-directive enough in this subject to select even from the text-book the historical material which ought to be used and omit that which is not fit for use. That the text-books themselves do not always contain the best historical material is evident.

In a text-book at hand a good deal of space is given to the Mound-builders; also a good deal to the story of Pocahontas, but the attitude of the governor of Virginia toward free schools is not even mentioned. The latter is evidently of great historical importance, while each of the former is of little or no historical importance.

Thus the value of the selective function of the organizing principle of history is, that it makes the teacher

and learner self-directive in choosing material for study of real historical worth.

The Interpreting Function.—The interpreting function of the organizing principle of history enables the teacher and student to place an interpretation upon historical events. According to this principle an event in history has been interpreted when the spiritual struggle which it manifests is seen, when the causes which lead to it are seen, and when the things which grow out of it as a cause are seen. Thus to interpret an historical event is to think it in its coexistent historical relations, its past historical relations, and in its future historical relations.

For illustration, the Emancipation Proclamation is interpreted when one understands the spiritual struggle which it at that time revealed, or manifested; when one understands the causes, both spiritual and physical, which led to it; and when one sees the spiritual and physical movements flowing from it and of which it was a cause.

Too often in history teaching the event only is learned, no interpretation being placed upon it whatever. Such history teaching and learning, of course, fails in almost everything which makes history a valuable subject in school.

The History Habit.—If the child in beginning the study of history is taught in a small way at any rate to place a historical interpretation upon historical events, and is gradually led to do this more and more as he progresses in his historical work, a place will be reached

where his mind will be dissatisfied to learn mere historical events. It will want to see events in their historical relations, and will dislike not to do so. When the mind has attained to this attitude toward history, it has formed the *history habit,* and is on the high road to success in the study of history.

This history habit of mind is constantly to be aimed at by the teacher or learner in history. It, plus effort and perseverance, insures one success in the study of history against any fear of failure.

The Emphasizing Function.—The emphasizing function of the organizing principle of history enables the teacher to distinguish between the important and the unimportant and to emphasize the important and to pass by lightly the unimportant. According to this function in connection with the selective and interpreting functions those events in history which manifest the struggle of the race for more life to a high degree; which an intense or long-continued spiritual struggle has caused; and which affect this struggle to the largest degree are the most important events in history. And since they are the most important, they should be most emphasized.

The ability of the teacher of history to select the essentials in his subject and emphasize them, and to pass by lightly the nonessentials, is a mark of a fine teacher. It also is a mark which is rare in teachers of history, geography, grammar and so on.

Too often it is the case that the teacher teaches with

about equal emphasis in history all which is found in the particular text-book he is using.

The emphasizing function of the organizing principle of history makes the teacher self-directive in the selection and emphasis of essential things in history, and thus makes him a better teacher of history.

The Dividing Function.—The dividing function of the organizing principle of history enables the teacher or learner to divide history into periods or epochs. It is necessary to make divisions in history in order to systematize the study.

History divides itself into periods on the basis of the predominant movement in the struggle for higher life. Thus for a time in the history of our country the predominant movement was that of discovery; then came the movement of the planting of local institutions; next the growth of local institutions; then the growth toward union; next the formation of the union, and last the period of national life.

The organizing principle by enabling the student or teacher to see the nature of historical movements and growth, enables him to see these natural divisions of history. Thus the fourth function of the organizing principle of history is the dividing function.

Method in History.—It will be remembered that method is the triple process in the teaching act by which the learner is induced to take steps from his actual condition to another held up as an ideal. This notion applied to history gives the following:

Method in history is the triple process in teaching

history by which the learner is induced to learn and feel the spiritual struggle of the race for higher life as manifested by events; as caused by events; and as causing events, in the life of a people.

It, too, should be remembered that there are five elements in the teacher's method in teaching any subject or lesson; namely, (1) thinking the subject-matter; (2) thinking the purpose; (3) thinking the basis; (4) thinking the steps and (5) thinking the devices. Since this is true, the study of method in history consists of the study of these five things; that is, (1) the subject-matter of history; (2) the purpose of history; (3) the basis of history; (4) the steps in history; and (5) the devices in history. And the teacher who knows method in history knows these five things.

The Forms of History.—The inherent self-urgency in each individual life and in the life of a whole people stimulates to development into what may be called historical forms. Such development is analogous to that of the lily or oak tree, in which force manifests itself according to the form inherent in the acorn or lily seed. Thus in the struggle of a people for higher life there arise certain institutional forms into, and in which history develops. Of these institutional forms, or institutions, the following five are the most fundamental: 1. *The family.* 2. *The church.* 3. *The school.* 4. *The business world.* 5. *The state.*

The Family.—This is the most fundamental institution of society. It, as the life of the race as a whole, has not always been what it now is. From a mere

mating arrangement of a few month's duration up through polygyny and polyandry to the monogamous family, more or less stable, of the present has the family in its development passed.

The controlling idea of the family is *love;* love between the husband and wife, between parents and children, between sister and sister, brother and brother, and brother and sister; sexual love, paternal love, filial love, and fraternal love. Love was not only the originator, but is the continuer and savior of the family.

The contributions of the family in the education of the children of a people are many, one of which of the highest importance is *obedience;* obedience through love, if possible, but obedience without fail. This is one of the first hard lessons for the child, the future citizen, to learn.

In tracing the threads of growth in the spiritual struggle of a people for higher life in studying history the value and interest of family life should receive just appreciation. Too often children learn almost nothing of this aspect of the struggle in studying the history of a people.

The Church.—From the small degree of power, wisdom, and love which man finds himself possessing he catches a glimpse in ideal of a being who possesses these characteristics in an infinite degree. What this being, God, would have him do is to him absolutely right, and only by doing this can he attain to spiritual perfection.

The spiritual struggle for higher life working itself

out in this way produced the *church* as an institutional form in history.

The controlling idea of the church is *righteousness.* This idea it attempts to carry out by bringing its members in right relations with God; to get them in such an attitude of mind and heart that they will do and love to do what they think their God desires them to do.

Tracing the growth in the development of the spiritual struggle in the church is a valuable part of the history work; both valuable and delicate.

The School.—The young of the human species is actually at birth about the least prepared for living and caring for itself of any living creature; also, its period of infancy and childhood is longer than that of any other animal. But by growth it becomes infinitely more than any other living creature, and this is what the child lives for, and for this alone. Thus the whole business of the child as such is *to grow.*

The school is the institution which the spiritual struggle of the race has produced to guide, watch and stimulate this growth, or development. Thus the controlling idea of the school is growth, or *development.*

To trace through the spiritual struggle of the race as it manifested itself in the development of the school is an interesting and profitable part of all school work. It too frequently is not done at all or but poorly done.

The Business World.—In the childhood of the race individuals owned very little property, but the *instinct of ownership* existed, and the development of the struggle along this line, that of ownership, has produced the

extremely complex system of ownership and exchange which we know as the *Business World.*

This development has reached a degree so great that every one of us is dependent upon others much more than he can at first thought appreciate. I am dependent upon my fellow for my house, my clothes, my conveyance, my fuel, my light, much of my food and drink, my books, my medicines, and my professional help; and he is no more independent in these things than I am.

Thus the controlling idea of the business world is *interdependence* of man upon man.

No history work should fail to trace out this phase of the struggle of the race for higher life. It is generally not well enough done in history teaching.

The State.—In the most primitive human life the principle, might makes right, has full sway. The stronger overcomes the weaker by the preponderance of physical strength and hinders his opportunity of life and happiness; robs him of his possessions and enslaves him possibly.

That equality of opportunity may be furnished to every one and that *justice* may be the reward of each one in his struggle for higher life, the state as an institution of society came into existence.

Thus the controlling idea of the state is *justice,* but the state carries on many other functions for the welfare of its members.

Unlike the growth in the struggle in most of the institutional forms of history the struggle in the state has been much emphasized in school work. In fact in

the average text-book in history and in the average history class in the public schools it is almost the only growth traced out, if an effort be made to see growth and development at all.

The state is the institution most emphasized in history teaching almost everywhere, notwithstanding that it is the part of history of least interest to children and least suited to their stage of development.

To trace the development of civilization in the state is of great importance in history work, but it is work suited better to higher stages of development than that of the students of the primary schools.

Other Historical Forms.—There are many other institutions of society besides the five fundamental ones, which are also historical forms. These are generally of two classes: 1. Those which are affiliated with one of the five fundamental institutions. 2. Those which are not affiliated with any of the fundamental institutions, but which have a more distinctly separate existence.

Of the first class are banks, organized book companies, building and loan companies, organized manufacturing companies, etc., affiliated with the business world; the Christian Endeavor, the Young Men's Christian Association, etc., affiliated with the church; library associations, art associations, and museum associations, affiliated with the school.

Of the second class are the Masons, the Knights of Pythias, the Oddfellows, etc.

Threads of the historical struggle develop in such

institutions as these but they are much less obtrusive than in the fundamental institutions, except occasionally.

CHAPTER XXVI.

THE PURPOSE OF HISTORY.

Meaning of.—By the mastery of history as a subject of study the learner's life will be largely changed. The ideas and thoughts he gets, the judging and reasoning he does, the feelings he experiences and the resolutions he forms all sink into his life to some degree and make it both temporarily and permanently different from what it would otherwise have been. This is the effect of the study of history on the life of the learner and this effect when history is rightly taught is the *purpose of history.* Thus in general the purpose of history is the *change* wrought in the learner's life by the proper pursuit of history.

Aspects of Purpose.—In general the learner's life is affected in two ways by the study of history. First, he will acquire much knowledge valuable to him for guidance in right living. This is, of course, an important part of the purpose of history. It may appropriately be called the *knowledge-giving purpose.* Secondly, in addition to the useful knowledge the learner gets from the study of history, he may get right habits of thinking, feeling and willing. Mental exercise to the end of becoming an accurate and ready thinker; of becoming the possessor of rightly cultivated feelings;

and of becoming possessed of well organized habits of acting righteously is called *mental discipline.* History is very valuable to the learner from this point of view. This second purpose of history is called the *disciplinary purpose.*

The Knowledge-giving Purpose.—Of the valuable knowledge which it is the purpose of history to give the following are important points:

1. The important historical facts of the leading nations of the earth.

2. The important truth that nations as well as individuals become what they are through a process of ceaseless, intense struggle and growth.

3. The truth that national and individual ignorance and prejudice have always brought pain, misery and sorrow to the children of men.

4. The truth that knowledge and openness to truth and conviction have always in the broad sweep of human affairs brought happiness ultimately to the children of men.

5. The truth that there are in the affairs of men and nations a seed-time, a period of growth and a fruitage; that they must sow if they would reap and that in general they are likely to reap what they sow.

6. The truth that the race has been guided in its struggle for higher life not much less frequently by myth, superstition and error than by truth.

The Disciplinary Purpose.—Of the disciplinary purpose of the study of history the following are important points:

1. It cultivates the kind of reasoning one must use most in life.

2. It cultivates the moral judgment to an extent probably not done by any other school subject.

3. It cultivates both the reproductive and the creative imagination.

4. It cultivates memory in the way which is the most helpful.

5. It fosters the spirit of free inquiry and free investigation; that is, the *scientific spirit.*

6. It broadens the learner's sympathies, develops tolerance and produces the spirit of charity; that is, it *socializes* the learner.

Historical Facts of Leading Nations.—That it is the purpose of history to give the learner the historical facts of the leading nations of the earth seems evident. Life demands that the learner shall know pretty well what the race has done in its struggle for higher life. Such knowledge is of immense value to one in every aspect of life. It enables one to order his own life so much better physically, intellectually, aesthetically, socially, morally, and religiously. No one can rightly claim to be educated who is ignorant of the achievements of the race in its zigzag march upward. Such knowledge is entirely necessary for broadness of intellectual outlook, for the enlargement of one's mental horizon.

But the field is so broad that only the leading nations of the earth can be studied in a lifetime. There would no doubt come value from the study of the history of all the nations of the earth, but those which have contrib-

uted largely to the stream of civilization furnish the large values. Also, more worth is found in an *intensive* knowledge of the nations which have poured bountifully into the current of civilization than in a *superficial* knowledge of all the nations of the earth.

Therefore, just the *important* historical facts of the *leading* nations of the earth are to be aimed at. Life is too short for more.

The Ceaseless Struggle.—History is the subject pre-eminent to teach the learner that all life is a struggle; that this is a truth of individual life and also a truth of national life. In the individual life there is the struggle for food, the incessant, imperative struggle of all living beings; a struggle that begins at birth and ends only with death; a struggle intensive to the degree that at times all other struggles wane before it. It is the bread-and-butter problem of the ages.

There is his struggle against the cold, against the heat, against the flood, against the lightning, against fire and against the storm.

There is the struggle against disease, tuberculosis, pneumonia, diphtheria, malaria, etc.

There is the struggle against enemies, insects, reptiles, other animals, poisonous plants and against one's fellow-man.

History better than any other subject makes real to the learner that life is a struggle.

In the life of the race all the aspects of the struggle exist just as truly as they exist in the life of the individual.

But out of all this struggle comes growth. There are periods in history when a nation not only does not seem to be growing, but actually seems to be losing to some degree what it has already attained. It, however, recovers and is found to have gained strength in some way from the time of adversity. Growth usually runs a zigzag course.

Results of Ignorance and Prejudice.—In the world's history there are many instances of the pain, misery and sorrow which result from ignorance and prejudice. In the United States notorious examples of it were the Salem Witchcraft, a result of the most shameless and appalling ignorance; and the persecution of the Quakers, a hideous instance of religious prejudice.

Many illustrations of it may be found in the lives of individuals in history, too, as well as in the life of a whole people.

Much of the misery of the Civil War in the United States could have been avoided, had the people of the two sections known each other better.

Lives have been lost by thousands, homes broken up, the innocent tortured and subjected to every misery and humiliation which the demoniacal ingenuity of the prejudiced and ignorant could invent. And all this because of ignorance and prejudice.

To have the learner to see this truth clearly, and feel it, too, is certainly a part of the purpose of history.

Knowledge and Openness to Conviction.—Knowledge had its genesis in the demand for better living, and in the long struggle of human development knowledge

has pointed the way to higher life and away from the lower. Knowledge has as its whole purpose to guide the human race to happiness.

Knowledge has liberated the human race from the bondage of superstition. Knowledge has tunnelled mountains, bridged rivers and spanned continents. Knowledge has harnessed waterfalls. Knowledge has utilized the phenomena of lightning to minister to man's wants. Knowledge prevents plagues, stamps out diseases, and makes the desert bloom like the rose. Knowledge has largely enfranchised the human race physically, intellectually, aesthetically, socially, morally, and religiously. And these are the things which bring happiness to the children of men.

The full meed of knowledge can come only from openness to truth and conviction. Any other attitude of mind not only hinders and stunts the development of knowledge but misguides its possessor.

Only openness to truth and conviction contribute to happiness.

A Seed-time and a Harvest.—The evil and good that come to men and nations are not accidental, but are the results of perfectly natural causes. The historical evidence of this truth is to be found in abundance in the lives of both individual men and nations. Good instances in the lives of individual men are the lives of Benedict Arnold and Aaron Burr on one hand, and the lives of George Washington and Abraham Lincoln on the other. Good instances of it in the lives of nations were England's colonial policy resulting in the loss of

her American colonies, and the physical, intellectual and moral impoverishment of Spain through the Spanish inquisiton.

Guidance of Truth and Error.—In the struggle of the race for higher life truth has, of course, guided. But error has also guided, and almost as often as truth.

The Greeks believed that their gods were immortal beings possessed of human passions and frailties, and that they were constantly taking part in the affairs of men and women. Zeus, or Jupiter, was the father of gods and men and Juno was his wife. Pallas, or Minerva, was the goddess of wisdom; Venus, the goddess of love, and so on. They dwelt on Mount Olympus; they had their prejudices, loved, quarreled, and were miserable and happy after the fashion of human beings.

How far these myths and errors influenced the lives of the Greek people only the careful student of Greek life can to any very large degree appreciate.

The Crusades were guided almost wholly by error and superstition.

In our own country the Salem Witchcraft and the persecution of the Quakers, and many other religious and moral movements are instances of events which were guided by error and superstition.

Cultivation of Reasoning.—One needs to reason only that he may live better. And each civilized person naturally must live in society. So the reasoning which helps one most to live in society will be the most useful kind of reasoning. Such reasoning is the kind which deals with the vicissitudes of human life both individ-

ually and in groups; the kind of reasoning which has to do with the desires, the passions, the sorrows, the joys, the hopes, the aspirations, the disappointments, the triumphs and failures of men and women in the probable and complex endeavor of human life individually and institutionally.

To be able to take an event in history and to trace it out in both its cause and effect relation proximately and ultimately requires a higher degree of reasoning in human probabilities than can ever be attained by any amount of study of methematics.

History rightly studied is a more valuable study to cultivate reasoning for the majority of students in the schools of the present by far than any branch of mathematics, the popular opinion to the contrary, notwithstanding.

Cultivation of Moral Judgment.—Early in the child's life he has no actual moral judgment, only the power to acquire one. This possibility will develop only by his exercising it in judging the right and wrong in human action, and by his being led to approve of the right and to condemn the wrong.

There is no other subject in the school curriculum which furnishes such large opportunity to exercise the learner in doing these things, *forming judgments of the right and wrong in human action, approving of the right and condemning the wrong,* as does history.

The cultivation of the learner's moral judgment is thus a large purpose of history in the school curriculum.

Cultivation of Imagination.—Imagination is the

mind's power of embodying ideas in particular forms, or images. If the image corresponds very nearly with some actually existing thing which the mind has known, the imagination is the *reproductive* kind; but if the mind adapts, or fashions, images and builds up complex images from them, the imagination is the *creative* kind.

In picturing the historical events in their setting about which the learner has been studying in his history work the reproductive imagination is exercised largely. This kind of imagination is used to a very large degree in history study.

In looking forward to events which would have resulted from various historical contingencies the free play of the creative imagination is called into exercise largely. For instance, if the learner pictures the conditions which might have existed in America, if the French instead of the English had triumphed in the French and Indian War, he uses his creative imagination. There is almost as much opportunity for exercise of the creative imagination in the study of history as for exercise of the reproductive imagination.

In educational councils history is usually ranked next to geography as a subject good for the cultivation of imagination. Geography is usually given first place as an imaginative subject of those in the primary school course.

The Cultivation of Memory.—The cultivation of memory consists wholly of building up systems of association, and there is no such thing as cultivating memory *in general* by studying any one subject. Nor is it

true that all exercise of the memory is a benefit to the mind. Remembering by *mere repetition* or by intense application may be more harmful than beneficial to the mind.

But history may be taught so as to cultivate memory in the most helpful way. An examination of the way in which one remembers will show that one can remember a thing only because it has been associated with some other known thing. So the cultivation of memory consists in associating the unknown with what is already known.

History may and should be taught so that the learner may see each event in history as an instance of the organizing principle of history, and thus associate it with this organizing principle.

The proper cultivation of memory in history consists of two things: 1. Firmly fixing in the mind of the learner the organizing principle of history. 2. Teaching the learner to see that each event in history is an instance of this organizing principle.

If history be studied in this way, it will prove an excellent subject to cultivate memory.

The Scientific Spirit.—The scientific spirit is the spirit of free inquiry and free investigation. History furnishes most excellent opportunities for leading the learner to be an honest searcher for truth; for leading him to see that he must lay down prejudice, must give up pet theories, must feel free to inquire for, and investigate all truth and all that passes for truth. No other subject in the school curriculum shows so well the neces-

sity of a mind open to receive, to welcome, to utilize and to enjoy the unadorned truth; a willingness to know, to listen and be convinced; a spirit of candor and honesty of intellect; a hate for the immorality of the intellect which withholds, distorts, minimizes, or refuses to accept the truth. Such a mind is a mind possessed of the *scientific spirit.*

Socializing the Learner.—To socialize the learner is to prepare him to live well in the society of his fellows.

The learner is naturally selfish, unsympathetic, uncharitable and intolerant. It is a part of the purpose of historical study to tone down this selfishness, to make the learner sympathetic, charitable and tolerant.

The instances in history of selfishness, lack of sympathy, lack of charity, and intolerance are many, and the learner may be led to condemn them and to approve of the opposite so frequently that a socializing effect will be wrought in his life.

"The student who has followed the historic stream from its early springs down to the present time, and observed the order of its flowing, will be full of the lessons of order, courage, patience, self-sacrifice, patriotism and liberty which it has taught; the past will no longer be a dead past, but a *living present,* ceaselessly *streaming forward, determining the life of the future.*" —Kemp.

CHAPTER XXVII.

BASIS IN HISTORY.

Meaning of Basis.—It is to be remembered that basis in any subject is just those points of knowledge which the learner has when he comes to school upon which the teacher can build in teaching that subject; also, that the educational principle underlying basis in teaching is the following: *The mind in learning naturally goes to the unknown from the nearest related known.* The basis in history is the known which is most closely related to the unknown to be taught.

Aspects of Basis in History.—In history the child is to learn about folks; about their struggles for more life; about their hopes, aspirations, sympathies, antipathies, joys, sorrows, successes, failures, victories, defeats, triumphs, passions, etc. But these aspects of human life manifest themselves in institutional forms, the chief of which are the *family,* the *church,* the *school, business life,* and the *state.* The average child when he comes to school at the age of six knows something about each of these institutions of society, and this knowledge is his basis for beginning the study of history. Thus there are at any rate five aspects of the learner's basis for history.

1. His knowledge of the family.
2. His knowledge of the church.

3. His knowledge of the school.
4. His knowledge of business.
5. His knowledge of the state.

The Learner's Knowledge of the Family.—Some of the child's knowledge of the family is vague and some is definite. It, of course, is made up of bits and fragments of truth, but along with this truth will be found error and myth.

He will know that the family is made up of father, mother and children; that father works for mother, that mother works for father and that both work for the children; that the members of the family are more closely connected with each other than those who are not members of one family. He will know something of birthdays and possibly something of marriage. He will know something of the family habits concerning food, clothing, sleep, meeting, separating, the spending of evenings, Sundays, and week days. He will know something of the furniture the family uses, the food eaten, the stove, lamps, chairs, carpets or rugs, books, pictures, musical instruments, tables, chairs, bureaus, beds, etc.; also, something of the family amusements, what the children play, what the parents play, walks, drives, etc.

All of this knowledge constitutes the learner's basis for studying the struggle in a people's life in the institution, the family.

The Learner's Knowledge of the Church.—The learner's idea of the church when he comes to school at the age of six is complex, consisting of truth, error and superstition, as a rule.

He has some idea of God, probably that God is a great, kind, benevolent, fatherly man—some idea of Christ as the son of God; some idea of Satan, the Holy Spirit, heaven, hell and angels. He knows there is a preacher, something of prayer, religious hymns, the sacrament, the Sunday School, the scripture, and some ideas of religious duties.

On these ideas as a basis is the history of the religious struggle of a people to be founded.

The Learner's Knowledge of the School.—Before entering the school the child's knowledge of school is pretty vague. But he may have been to kindergarten, and in that case he knows something of what the school is like.

He is likely to know there is a place called school to which children go and where they learn to read and write. He knows something of books and that they are in some way connected with the school. He has heard people read and he has seen them write. He has heard of a teacher in connection with the boys and girls of the school.

These ideas, usually rather vague, constitute the basis for the history of the struggle of the race in the school.

The Learner's Knowledge of Business.—It is this aspect of the learner's basis for history which is usually the most definite and elaborate.

He has ideas of money, probably having bought something, and in many cases having saved some pennies. He knows something of railroads, cars, automo-

biles, bicycles, wagons, horses, and possibly steamboats; also, something of lumber, brick, stone, iron, wood, coal, meats, milk and butter. He knows something of leather, coats, dresses, trousers, boots, shoes, hats, caps, and so on; also, something of sugar, coffee, tea, bread, bananas, oranges, apples, berries and other fruits. He knows something of the occupations of his parents and neighbors. He knows that food, clothing and other commodities are to be had largely from other persons than his parents by exchange, and that many of them are produced in other places than places near his home. He also knows that many of them must go through a process of preparation before they can be used. That is to say, he knows something of the *production*, *preparation* and *distribution* of material wealth.

This knowledge is the learner's basis for tracing out the business struggle of a people for higher life.

The Learner's Knowledge of the State.—The child who comes to school at the age of six has some ideas of the state, but like some of his other ideas, they are very indefinite.

He has heard of some of the officers of the state, the police, sheriff, constable, judge, something of holidays, Thanksgiving, Fourth of July, Christmas, etc. He has in some instances heard of the courthouse, jail and penitentiary.

Doubtless his ideas of the significance of all these are pretty hazy, but they constitute the basis which the learner brings to school for tracing the struggle in the institution, the state.

A review of what the average child has for basis to begin the study of history when he comes to school at the age of six shows that he is in possession of an ample basis, broad enough in extent and comprehensive enough in intent. Thus if the learner is not started in history in the first year of his school life, a lack of basis can not be given as a justifiable reason.

CHAPTER XXVIII.

STEPS IN HISTORY.

Meaning of Steps.—It is to be remembered that steps in teaching are mental things and are in the mind of the learner. There are many separate things to be got in learning history and the mental activities corresponding to these separate things respectively are the steps in history. Thus the mentality corresponding to the Kansas-Nebraska Bill is one large step in history, and so is the mentality corresponding to any other point in history a step.

Classes of Steps.—There are those steps which are arranged in the order of time, the *chronological steps.*

Thus, if one seeks what points should be taught in history first, secondly, thirdly, and so on throughout the first year, the second year, the third year, etc., through the school course, he seeks the chronological steps in history.

But if one seeks what one must learn as the elements of all history regardless of any specific time, he seeks the *logical steps* in history.

The Logical Steps in History.—These are the movements of the mind in the mastery of those elements which make up the history of any people; that is, the common elements of the history of a people. They are as follows:

1. The advance of the learner's mind in learning the events of history.

2. The advance in the learner's mind in learning the spiritual struggle in the life of a people.

3. The advance of the learner's mind in seeing the events as the manifestation of the spiritual struggle in the life of a people.

4. The advance of the learner's mind in seeing the events as the cause of the spiritual struggle in the life of a people.

5. The advance of the learner's mind in seeing the events as the effect of the spiritual struggle in the life of a people.

Any one who knows these five things in the life of a people, knows the history of that people. Thus these five things are in general the five logical steps in the mastery of the history of any people.

The Chronological Steps in History.—These are the steps in the order of time. That is to say, the steps in succession throughout the history work of the learner in school.

The most important problem concerning the chronological steps in history is the best order of taking them. The question is, What is best to do first, secondly, thirdly, and so on in teaching history? Here is a vast lot of historical material, and the problem is the best order in which to teach the separate points.

There are in general two orders of steps proposed by educators and teachers, as follows:

1. There is the order of beginning back with the

infancy of the race and tracing the race's development down to the present time. According to this order the learner is led to study in general the Aryans, first; next, the Persians and Hebrews; next, the Greeks; next, the Romans; next, the Saxons; then, the English; and lastly, the Americans and other modern nations. This order is intended to enable the learner to trace out the stream of civilization from its source down to the present time as it appears in the white race.

2. There is the order which begins nearer home in both time and place, and reaches forward and backward from this starting point. This order of steps is not uniformly taken in different places in the schools of the United States, and it quite generally lacks organization. The following from a Uniform Course of Study for one of the Central states will illustrate:

"FIRST YEAR.

First Part.—Primitive Life (Indian Stories).
Second Part.—Pioneer Life.

SECOND YEAR.

First Part.—Great Americans.
Second Part.—Norse Life.
Third Part.—Norse Life.

THIRD YEAR.

First Part.—Hebrew Life.
Second Part.—Greek Life.
Third Part.—Great Greeks.

FOURTH YEAR.

Stories from Roman History, using 'The City of the Seven Hills.'

FIFTH YEAR.

Gordy's 'American Leaders and Heroes.'

First Part.—The Period of Discovery, Exploration and Settlement.

Second Part.—The French War and the Revolution.

Third Part.—Expansion, Inventions and Slavery.

SIXTH YEAR.

Mowry's 'First Steps in the History of England.'

SEVENTH YEAR.

United States History.

EIGHTH YEAR.

The eighth year history should cover the period of National History to the present time.''

It is to be observed that according to the second order of taking the steps there is a good deal of browsing around over the historical field. In fact, the chief characteristic of the second order of the chronological steps in history seems to be the freedom which it gives to browse.

The First Order.—According to this order the learner is led to see that the history of a people is a stream, starting at its source a tiny streamlet but increasing in width and depth as tributary after tributary flows into it till it surges a mighty river. The

Persians, the Hebrews, the Greeks, the Romans, the Saxons, the English and the Americans are seen one by one to pour their contributions into this stream of civilization as it widens and deepens in the life of the race.

First, Aryan life, by grouping the work around some Aryan child, is studied; then Persian and Hebrew life, by grouping the work around Persian and Hebrew children; and so on with Greek, Roman, Saxon, English and American life. Their family life, church life, school life, business life and state life are studied, the events from the first having placed upon them an historical interpretation in a small way. As the children advance in their work they will be led more and more to place a truly historical interpretation upon the facts which they learn. In this way they begin to grow little by little into the *history habit* of mind.

For instance, in the study of Aryan life, the work is usually grouped around the Aryan boy, Kablu. Around this little boy's life cling those things of the home which are taught to the children; things about the religion, about the education, about business and about government in so far as there was any.

This work is given orally by the teacher at the first lesson; then the children talk about it in a second lesson, and a little higher in the course they may be led to write about it. Thus the work may be made to correlate with primary language lessons, spelling, writing and reading lessons.

This work would be based upon some book or books dealing with the life of these peoples. The book most

widely used for this work is one called "Ten Boys Who Lived on the Road from Long-Ago till Now." It traces the civilization of these peoples by grouping it around child life.

The Second Order.—According to this order the topics as previously indicated in the first year; that is, stories of Indian life and pioneer stories, are taught to the children. The work is oral in the main. It is made to correlate with primary language, and possibly with reading, writing and spelling. The work of the other years is done in a very similar way to that of the first year till a place is reached where the text-book can be put into the hands of the learner. After that the history work is based upon the text-book.

Work by Years.—The work for the first year is as follows:

1. The study of Aryan civilization grouping the work around child life. The work is almost wholly oral and is to correlate with primary language, reading, spelling and possibly writing,

—or—

2. Stories of Indian children and pioneer life. The work is almost wholly oral and is made to correlate with primary language, reading, spelling and possibly writing.

The work of the second year is as follows:

1. The study of Persian and Hebrew civilization grouped around child life. The work is largely oral and is correlated with language lessons, reading, spelling and writing,

or

2. Pioneer life and Great Americans. The work is largely oral and is correlated with language lessons, spelling, reading and writing.

The work of the third year is as follows:

1. The study of Greek civilization grouped around child life. The work is largely oral and is correlated with primary language lessons, reading, spelling and writing,

or

2. American biographical and historical stories. The work is oral in the main and is correlated with primary language, reading, writing and spelling.

The work of the fourth year is as follows:

1. The study of Roman civilization grouped around child life. The work should still be mainly oral and is correlated with primary language, reading, spelling and writing,

or

2. Stories of the settlements and colonial life in America. The work should be mainly oral, and is correlated with primary language, reading, spelling and writing.

The work of the fifth year is as follows:

1. The study of Saxon and early English civilization grouped around child life. The work should yet be largely oral, and is correlated with primary language lessons, reading, spelling and writing,

or

2. "American Leaders and Heroes," by Gordy.

The text-book is to be placed in the hands of the children.

The work of the sixth year is as follows:

"First Steps in History of England," by Mowry. The text-book is placed in the hands of the learner.

The work of the seventh year is as follows:

The History of the United States up to the adoption of the Constitution.

The work of the eighth year is as follows:

The history of the United States from the adoption of the Constitution to the present time.

Comparison of the Two Orders of Steps.—It is evident that there are some marked differences in the character of these two orders of chronological steps. To designate them in the discussion the first may be called the *development order,* and the other, the *promiscuous order.* The following compares them:

1. The development order is systematic and well organized; the promiscuous order is unsystematic and poorly organized.

2. The development order is in harmony with the nature of history; that is, that history is an evolution in the life of a people. The promiscuous order is not in harmony with the nature of history.

3. The development order leads rapidly toward the formation of the *history habit;* the promiscuous order, slowly, if at all.

4. The development order is based upon the thought that the child in his growth and development

repeats the history of the race; the promiscuous order does not recognize this thought.

5. The development order makes the work easier to remember than the promiscuous order because it observes a natural sequence of events.

6. The promiscuous order is probably easier for poorly qualified teachers.

Oral Teaching.—In oral teaching in history the teacher, first, places the lesson before the class in story form as interesting and entertaining as possible; secondly, she, by questions, has the children reproduce it orally; then, if the stage of development of the children warrant it, it may be reproduced in a written language lesson. As the work progresses, frequent oral reviews must be given to fix the work in mind.

The first few years of history work must of necessity be presented orally. The children in these years can not read history. Their development is not sufficient for them to do so.

The following difficulties in presenting the work orally can be overcome by most teachers:

1. It is difficult for most teachers to tell a story well.

2. In oral teaching close attention of all the members of the class is sometimes difficult to maintain.

3. It is difficult to get teachers to organize each lesson into topics. The tendency is to ramble.

4. Teachers do not know history well enough and often do not have material at hand for proper preparation.

5. In many schools teachers do not think they have time for oral lessons.

Almost any earnest teacher, though, can see her way through these difficulties in oral teaching in history.

CHAPTER XXIX.

DEVICES IN HISTORY TEACHING.

Meaning and Importance of.—Devices, it will be remembered, are the external means used by the teacher and learner in the teaching act. The manipulation of these constitutes the physical method in teaching.

They are important in teaching any school subject, because the growth in the learner's life depends upon the experiences he has, and the experiences he has depends upon the means used to arouse these experiences.

Enumeration of.—The following are a list of important devices in teaching history: 1. Assignments. 2. Class discussions. 3. Text-books. 4. Maps. 5. Public documents. 6. Pictures. 7. Reference books. 8. Outlines.

Assignments.—It is difficult to tell whether assignments or class discussions are the more important devices in teaching history. They seem to be of almost equal importance. But good history teaching can not exist when the assignments are poor. Good assignments in history must possess the following characteristics:

1. They must be pointed, specific and definite.
2. They must lead the learner to acquire the right concept of history.

3. They must tend toward the formation of the history habit.

4. They must emphasize the important and pass by more quickly the unimportant.

History assignments should, as a rule, be written, if the best results are to be hoped for. The teacher who constantly gives studied, thoughtful, definite written assignments in history is almost sure to secure very satisfactory results.

Class Discussions.—This device of almost equal importance with assignments may be used very effectively by the teacher in teaching history. The teacher's greatest tact and skill will manifest themselves in the way he directs class discussions.

The teacher in his class discussions has opportunity to do the following things for the learner in history:

1. To test him on his understanding and preparation of the lesson.

2. To supplement the knowledge of the lesson which the learner has gained in its preparation.

3. To give the learner right habits of studying history.

4. To approve, stimulate, encourage and inspire him in his work.

The teacher who uses the opportunity to do these things by class discussions makes them a very important device in teaching history.

Text-books.—One might possibly be able to teach history without a text-book in the hands of the learner, and should do so of course in the lower stages of the

work, but in the higher stages of the work the book is needed. A good text-book is a great convenience for both teacher and learner.

Text-books in history, though, are not the history; they are relegated to their proper position of importance when they are considered a mere device.

The text-book in history should not trace the struggle of a people merely in one institution, the state, but in all institutions; in the family, in the church, in the school, in business and in the state.

Maps.—Maps are a useful device in teaching history and should be used much more than they generally are. They make clear the position of coast lines, mountains, rivers, boundary lines, cities, plains, passes, roads, canals, and other relief forms that affect the history of the people.

A good history teacher will find much use for good maps in his work.

Public Documents.—Public documents are a valuable device in all research work in history. The student of history who wants to study any subject in history intensively studies public documents most carefully. For instance, any one who wants to make an intensive study of our *pension system,* or *the waste of war,* would find almost all the means of research in public documents.

Thus in the higher phases of history study public documents are an important device.

Pictures.—Every one likes pictures of important historical *scenes, buildings,* and *events.* They are liked

especially by children, of course, and thus are a means in the hands of the teacher to arouse interest and to stimulate to study in history. Most of us can remember, perhaps, that we have wanted to know more about things in history of which we first learned by pictures.

They also make history work more vivid, and impressive, and thus enhance the opportunity of remembering accurately.

Reference Books.—The text-book and the teacher's work in history study should be supplemented by a good reference library in history. No large knowledge of history can usually be attained to from the teacher and text-book merely. To catch the historical spirit, to have a broad historical horizon one must read widely in history.

The good history teacher always wants a good reference library and wants his students to make free use of it.

Outlines.—Outlines are valuable organizers in history teaching. But many teachers in teaching history fail to use the outline to its full worth. The historical outline is of some help in teaching history, if made by the teacher, but of very much more help if made by the learner. Thus to get most good from the outline in history the learner should be led to make it for himself.

The value of outlines in history teaching lies in their help in systematizing the work and thus enabling the learner to see it as an organized whole. But that

the outline may do this most helpfully it must be made by the learner, not by the teacher.

Other Devices.—There are other devices in teaching history than those studied above. It is meant here that the ones studied above are only some of the most important ones.

CHAPTER XXX.

ERRORS IN TEACHING HISTORY.

Prevalence of.—There are a great many errors made in teaching history as it is usually done in our schools. And there are at any rate two reasons why this is the case:

1. Contrary to popular opinion, history is a subject difficult to teach well.

2. Many teachers have little more than the vaguest ideas of the true nature of history.

Enumeration of.—The following are common errors in teaching history:

1. Teaching history as a record of events.

2. Teaching events as isolated to too large an extent.

3. Failure to interpret events.

4. Failure to differentiate the important from the unimportant.

5. Tracing struggle only in the state.

6. Bad order of steps.

History as a Record of Events.—There are many teachers yet who regard history as the record of events and teach it as such. Such teaching necessarily degenerates into a verbal memory drill. The spirit of history is likely to be entirely lost in the effort required to remember the form of the record. History so taught loses

its human interest, is most difficult to remember, fails to develop the moral judgment, and the accurate reasoning resulting from the proper history study.

It gives the learner the wrong idea of what history is, underestimates its educational worth, and, in many cases, gives the learner a permanent dislike for history as a subject.

No teacher, be he who he may, who regards history as merely a record of events can teach history well.

Teaching Events as Isolated.—Every event in history has its roots deeply buried in the past and projects its influence far into the future. Only when the movements in history which have led up to the event are understood can any event be understood. Movements can be grasped and comprehended by children as can any series of connected changes, and any event will be placed naturally in the series. But to teach the event as isolated is to fail to give it the connections in the mind of the learner which would enable him to fix it in mind. To remember events in history isolated to any large degree one must depend upon intense application and numerous repetitions. But to rely upon these ways of remembering is injurious to the judgment and reasoning in history.

The evolution of a people toward higher life can never be seen by studying events as isolated. Only when events in their relations are traced out can the growth of people in civilization be seen.

Failure to Interpret Events.—It is a most common error for the teacher to fail to lead the learner to inter-

pret events in history. An event in history is interpreted only when it is traced out in its historical relations. These are the relations of the event to the spiritual and physical growth of the people in their struggle for higher life. The event must be seen to be the effect of the struggle in the life of the people in the past, both spiritual and physical; it must be seen to be a cause of the struggle in the life of the people, both spiritual and physical; and in all cases it must be seen to manifest what is in the spiritual life of the people.

Unless this is done in history the learner is never likely to catch the spirit of history, enjoy it, and be a real student of history. That is, he is never likely to get the historic attitude of mind—the *history habit.*

In the lower grades of the work this can be done only in a small way, but as the learner advances in development, he should be led more and more into the habit of placing a strictly historical interpretation upon historical facts. Too often in history facts are taught as mere facts to be learned and stowed away in the memory.

Lack of Differentiation of Important and Unimportant.—It is evident that not all events are of equal historical importance, but it is not uncommon for the teacher of history to teach, with about equal emphasis, everything he comes upon in the text-book which he happens to be using. It requires a good knowledge of a subject to be able to distinguish between the important and the unimportant in teaching, and this is especially true of history. Certain events in history are mile-

stones which mark important places in the evolution of the life of a people. These must be seen to be so important that nothing is to be left undone to fix them firmly in the life of the learner.

They also become instruments of thought in history study by means of which history may be interpreted. It is upon these important events in history that the stress should be placed.

To emphasize all equally in history is, first, *to waste time and energy; secondly, to give the wrong attitude of mind toward history.*

Tracing Struggle only in State.—In almost all text-books in history the struggle of a people for higher life is traced out very much in only one of the institutions of civilization, the *state.* And since most teachers of history are guided by the text-book in teaching, the learner is usually led to trace the struggle in only one institution, the *state,* if he be led to trace it at all. This is, of course, an important part of the history work, but no student will ever catch the spirit of history or become proficient in history by studying merely the development of the state.

The Ordinance of 1787, the Omnibus Bill, and the Dred Scott Decision are of great interest to the advanced student of history, but not so to the elementary student of history. In teaching the events in the evolution of the state in history the teacher is usually teaching the most uninteresting part of history to the average elementary history student. What occurred in the family life, in the schools, in the church, and in

business life, in the evolution of a people's civilization appeals to the boy and girl in history in a much greater degree than what occurred in the state as an institution. Thus the most interesting parts of history to boys and girls are frequently omitted from history teaching while they are being drilled upon the dry events of the state.

To trace the development in the state alone does the following undesirable things: 1. It takes much of the interest out of history. 2. It frequently gives the learner a permanent dislike for history. 3. It gives an erroneous notion of what history actually is.

Bad Order of Steps.—The order of development in studying anything is always the most natural and most economical. For this reason the order of development should be followed in teaching history. The order of development in history is from the simple to the complex, from the childhood of a people to its maturity.

To begin the learner with the history of the United States in the Period of Voyage and Discovery is to begin in the middle of the life of various peoples, and is not best. Surely, in the best history teaching the learner must be led in general at any rate up through Aryan, Greek, Roman, Spanish, French and English history to the history of the United States. This in most cases is not done as history is usually taught. But the need of it is very great.

CHAPTER XXXI.

NATURE AND SUBJECT-MATTER OF GEOGRAPHY.

Nature of.—The idea which the teacher holds of the nature of any subject will determine to a large degree how he will teach that subject. While this is true of all school subjects, it is true to a larger degree with respect to the subject of geography than with most other subjects. For instance, if the teacher believe that geography is not a separate science of itself, but a conglomeration of fragments of sciences, of botany, of zoology, of geology, of astronomy, etc., he is almost certain to teach it in an unsystematic, unorganized way. But if he believe that it is a separate, dignified science, he is likely to teach it in a systematized, organized way.

Views of Geography.—There are to be found in the minds of people engaged in school work three rather definite views of what geography is, as follows:

1. There is, first, what may be called the *popular,* or *unscientific,* view.

2. There is, secondly, the view that geography is the study of the earth as *the home of man.* This may be called the *anthropological* view.

3. And lastly there is the view that geography is, in short, the science of distributions. This may be called the *scientific* view.

This question may be studied in two ways: first, it may be studied by finding out what scientists who are good authority have to say on the nature of geography; secondly, it may be studied by the exercise of one's own thought upon it; that is, by one's own thinking.

First, we will see what those who know have to say about what geography is.

The International Geographical Congress, which met at Venice in 1881, says:

First, "the scientific object of geography comprehends the study of the superficial forms of the earth; it extends also to the reciprocal relations of the different branches of the organic world."

Secondly, "that which eminently distinguishes geography from the auxiliary sciences is that it localizes objects; that is to say, it indicates in a positive and constant manner the distribution of beings, organic and inorganic upon the earth."

Professor Hettner of the University of Leipsic said, in 1895:

"The geography of to-day starts from the point of view of diversity in space, and aims at a scientific explanation of the nature of regions inclusive of their inhabitants."

Professor Neumann of the University of Freiburg says:

"General geography deals with the general laws of distribution of every class of phonomena on the earth's surface."

Professor Davis of Harvard University says:

"Geography treats of al terrestrial phenomena in mutual dependence."

Other authority says: "Geography is the science of distribution." "Geography is the science which deals with the mutual relations in space of relief, climate and life."

It appears from these opinions of such eminent authority that the cardinal idea of greography is expressed by the word *distribution.* This idea is the nucleus of every thought here quoted concerning the nature of geography. It is the idea of distribution which predominates in every quotation. Thus in the opinion of these authors *distribution* is the distinguishing characteristic of geography.

The Popular View.—It is doubtless entirely correct to say that a large majority of people at the present time hold either consciously or unconsciously the popular view of geography. They think of geography as being composed of truths of astronomy, geology, mineralogy, physics, chemistry, mechanics, zoology, botany, ethnology, anthropology, sociology, history, civics and economics, not organized into a separate science, but as fragments of various sciences.

Evidence of this truth is found in the way the subject is treated in the average text-book of geography and in the way the subject is most usually taught by teachers everywhere.

The average text in geography treats of a little of the truth of almost every science, and in a way not at all different from the way truth is treated in the respective

sciences. And most teachers, since their ideas of geography are molded by the text-book, teach a little of almost all sciences and call it geography.

Such a view of geography is very unscientific and unsatisfactory to a mind desirous of accuracy and definiteness. With such a view of geography the teacher can literally scatter all over creation in teaching and still keep within the limits of his subject. Thus it is not a helpful view of the subject.

Again, according to the popular view of geography there is nothing about the subject to distinguish it from the allied sciences, geology, astronomy, zoology, etc.

This view is the view of the unthinking, slovenly teacher or author.

There is no geographer if importance to-day who holds such a view.

The Anthropological View.—The anthropological view of geography is that it is the science which deals with the truths of the earth as the home of man. According to this view all phenomena of the earth are to be thought of in relation to their fitness or unfitness for man's home.

This view is based upon the very unscientific assumption that all things were created and are providentially governed for the welfare of man; the assumption that every flower, every pebble, every mountain, every dewdrop, every ocean, every mosquito, every bug or beetle, every insect of any kind, every thunderbolt, every storm, etc., is the manifestation of a thought to contribute to the welfare of man.

This assumption violates in toto the greatest of all scientific truths, the truth of universal evolution.

Thus this view of geography is in contradiction to the greatest of all scientific truths, and is therefore very unscientific, too. It is a narrow view of geography. It is a bigoted, intolerant, selfish view of geography. It leads away from the truth as taught by the best scientists in all countries at present.

If there ever was a time when such a view of geography should have been taught, it certainly has long since gone by. No up-to-date geography would hold such a view at the present time.

The Scientific View.—This is the view that geography is a science separate and distinct from other sciences; dignified, worthy and exalted in the family of sciences. It holds that geography has an organization of its own; that it has an organizing truth peculiar to itself. It holds that, while geography deals with many truths which are dealt with in other sciences, as in geology, astronomy, botany, zoology, etc., it deals with them in a relation characteristic of geography, but not characteristic of those sciences. That is to say, geography has its own organizing truth, or organizing principle.

In this view geography deals with the phenomena of the earth as to their distribution. The phenomena of the earth are climate, relief forms, plant life, animal life and human life, on the surface of the earth. Climate means heat, light, moisture and winds. Relief forms means mountains, valleys, plains, plateaus, rivers, lakes,

gulfs, bays, oceans, islands, etc. Animal life means quadrupeds, fishes, birds, reptiles, insects, worms, mollusks, etc. Human life means all sorts of men, women and children as those terms are commonly understood.

Each of these things is cause of the distribution of the others; and each of these things is also the effect of the others as to its distribution. Thus climate is the cause of the distribution of plant life, because plants can grow only where there is a supply of heat, light and moisture. But plants, especially forests, affect the heat and moisture of regions and thus are cause of distribution of climate in turn.

Again, plant life is the cause of distribution of animal life, for animal life can exist to any large extent only where there is plant life. And animal life helps in the dissemination of the seeds of plant life and thus is in turn the cause of the distribution of plant life.

The phenomena of the earth thus have to one another a mutual relation of distribution on the earth's surface.

This view will be found upon study to be in harmony with the views of the eminent geographers previously quoted in this chapter.

From the previous study the following is the scientific definition of geography:

Geography is that science which treats of the phenomena of the earth as to their mutual relation of distribution.

The three essential ideas of this notion of geography are:

1. Geography is a science.

2. Geography treats of the phenomena of the earth.

3. The phenomena of the earth are to each other mutually cause and effect as to distribution.

Geography is a science because it consists of a body of truth organized around a central idea. It is a separate science because the truths in geography are organized around a central idea different from the central idea of any other science.

The truths of geography are truths of climate, relief forms, minerals, plant life, animal life and human life. These, climate, relief forms, minerals, plant life, animal life and human life are the phenomena of the earth. Thus geography treats of the phenomena of the earth.

The phenomena of the earth are widely distributed over the earth's surface, and this distribution is in harmony with the laws of evolution. The most fundamental distribution being that of heat. The distribution of heat is the cause of the distribution of moisture and relief forms. And the distribution of moisture and relief forms is the cause of the distribution of heat. And this relation of distribution obtains among the various phenomena of the earth, in some instances to a small degree and in some to a large degree, but in all instances to some degree. Geography is the science and the only science which traces out this distribution. Hence the definition, "Geography is the science of distributions."

And from this discussion the definition of geog-

raphy can be elaborated into the following: *Geography is that science which treats of climate, relief forms, minerals, plant life, animal life and human life as to their mutual relation of distribution over the earth's surface.*

The Concept, Geography.—The concept, geography is one's general idea of geography. That is to say, the idea of geography made up of those elements found in all geography. In the scientific view of geography the following elements are found in the concept: 1. A science. 2. The phenomena of the earth. 3. The wide distribution of the phenomena. 4. The distribution of phenomena, the cause of the distribution of phenomena. 5. The distribution of phenomena, the effect of the distribution of phenomena.

This is the concept of geography consistent with the universal truths of science, and the only one consistent with the great law of evolutionary development in both the organic and inorganic worlds. It is the most helpful working concept of geography, too.

The Subject-matter of Geography.—It is to be recalled again that a subject-matter in any subject or lesson is *the material of study;* also, that every subject-matter consists of two things: (1) the facts to be studied or taught, and (2) the relation in which these facts are to be studied or taught.

The facts to be understood in geography are *the phenomena of the earth,* and the relation in which they are to be taught is *as to distribution* on the earth's surface. This has before been seen to be a mutual rela-

tion. So the subject-matter of geography may be stated as follows:

The subject-matter of geography is the phenomena of the earth as to their mutual relation of distribution on the earth's surface.

This statement means that in the subject of geography the learner is to be led to learn the facts of the phenomena of the earth, to see their distribution, to see the causes which produced this distribution, and to see the effects of this distribution. Only when he has done this, has he studied a fact of the earth geographically.

For instance, the narrow strip of sandy soil along the eastern shore of Lake Michigan is one of the fruit gardens of the world and is commonly known as the peach belt.

Now, the learner has learned this region geographically only when he sees that the soil was formed by the glacial deposit and the throwing up of the sand by the water of Lake Michigan, and then by its recession; when he learns that the climate, on an average ten degrees or so warmer in the winter than the climate of the region a hundred miles south, is tempered by the waters of the lake; when he understands that the average rainfall is more than forty inches annually, and that these conditions are conducive to fruit growing. Secondly, when he understands that the yield of peaches, pears, plums, cherries and berries and melons has made intensive farming a necessity; has made farms small, has caused the growth of cities; has established commercial routes and commerce; has caused nurseries to spring

up; has established schools and churches and factories, and furnishes food supplies to almost all parts of the world.

The Organizing Principle of Geography.—Geography, like history, has a distinct organizing principle of its own. It is the relation in the subject-matter, and is the thing which sets geography off from the allied sciences of astronomy, geology, botany, zoology, etc. It is a two-fold relation, cause and effect, mutually, which exists among the phenomena of the earth. It organizes geography as a science, and gives the subject its distinctive character. The following is the formal statement for the organizing principle of geography:

The organizing principle of geography is the mutual cause and effect relation between the phenomena of the earth as to their distribution on the earth's surface.

No other science has the same organizing principle as geography. Several sciences deal with the same facts as geography, in part, at any rate. Astronomy deals with the Solar System and so does geography; geology deals with the formation of soils and so does geography; botany and zoology deal with plants and animals and so does geography. But geography is not astronomy, geology, botany nor zoology. These allied sciences deal with their facts in different relations from the relation in which geography deals with these same facts. Thus the sciences allied to geography differ from geography in that they (1) deal with facts in part different from the facts of geography; (2) have differ-

ent organizing principles from the organizing principle of geography.

Geographical Facts and Relations.—A geographical fact is any fact which has any influence upon the distribution of terrestrial phenomena. As such are the height of mountains, depth of valleys, amount of rainfall, a city, a canal, a railroad, etc.

A geographical relation is a causal relation or an effect relation between any two terrestrial phenomena or groups of phenomena as to their distribution.

Functions of the Organizing Principle of Geography.—As in history the organizing principle of geography has four functions: 1. Selective. 2. Interpreting. 3. Emphasizing. 4. Dividing. In general, this means that the teacher who knows the organizing principle of geography knows better what to select to teach, how to interpret it, what to emphasize and how to divide the subject than without such knowledge.

The Selective Function.—In every subject taught in school the field from which the material is obtained is so broad that not all of it can be taught. A selection of material must be made. And in no other subject is the necessity for a selection greater than it is in the subject of geography, for in no other subject is there such a vast amount of material from which choice is to be made. One might study the phenomena of the earth a lifetime and still be able to master only a very little of geographical truth.

As great as the need for selection from this vast field of geographical material is, not less great is the

need for wise selection, the selection of those things which will be most worth studying as such, and which will furnish the greatest added power for the attack of new problems. This is often a difficult task, and since there is so much to choose from, the difficulty of the task is thus made greater.

Teachers in the past have not troubled themselves to any very large extent with this problem. They have depended upon the text-book to select material for geography study and have followed the text usually pretty closely. As a result much scattering, fruitless teaching has been done in geography, because a worse selection of material could hardly be made than found in many texts. Usually a multitude of things are presented to study, but a mere pittance of truth stated about each. Geography becomes a mere memory drill, the student learning a little of almost everything and nothing much of anything.

In this matter of the selection of material it is most desirable that the teacher be self-directive, that he may free himself from the text-book, be able to rise above it and select such material as should be used and reject such as should not.

And this is just what is meant by the selective function of the organizing principle of geography. It indicates to the teacher that those things are to be studied in geography which are large factors in the distribution of the earth's phenomena, and that those things which have little or nothing to do with distribution should be passed by. Adherence to this

function of the organizing principle of geography would correct to some degree the scattering, vague work so prevalent in geography.

The Interpreting Function.—Facts of the phenomena of the earth as such belong no more to geography than they do to a half dozen other sciences. They are a part of the subject-matter of geography only when a geographical interpretation is placed upon them. In leading the learner to do this the teacher has opportunity to show his greatest skill in geography teaching and opportunity for doing the learner the greatest good in geography teaching. And to fail entirely to do this is to fail distressingly in geography teaching.

The interpreting function of the organizing principle points the way properly to interpret a geographical fact. It indicates that a geographical phenomenon is interpreted first, when the distribution which caused it to be located where it is, is traced out; and, secondly, when the distribution of which it is the cause is traced out. That is to say, a geographical phenomenon is an effect and a cause of distribution, and according to the organizing principle of geography it is interpreted by understanding that of which it is an effect and that of which it is a cause as to distribution.

For instance, there is in South America a narrow verdant strip of country in Chili in which is located the city of Valparaiso. It has an equable and delightful climate with clear days and brilliant nights. Its summer is from November to March. It grows Indian corn, wheat, barley, oats, beans, beets, fruit, tobacco

and silk. Large numbers of cattle, horses, mules, sheep and goats are reared. It is situated between the Andes Mountains and the coast.

Now, according to the organizing principle of geography this bit of geographical truth is interpreted, first, when the causes which have located these phenomena here are faithfully traced out and understood; and, secondly, when the effect on the distribution of other terrestrial phenomena which the location of these phenomena has caused is traced out and understood.

The attitude of mind of teacher or learner which leads to a tendency for him habitually to place such an interpretation upon terrestrial phenomena is what is called the *geography habit*. It is that which the teacher should strive to establish in the mind of every geography student.

The Emphasizing Function.—It is a rare teacher who is able to distinguish between the important and the unimportant to a large degree in his subject and emphasize the important and pass by lightly the unimportant.

The organizing principle of geography guides the teacher in doing this and this is what is meant by its emphasizing function.

The emphasizing function of the organizing principle of geography shows that from the vast number of terrestrial phenomena those which are large factors in distribution should be studied intensively, that is, emphasized; and that most of those which do not influence distribution largely are not to be dealt with at all in

the geography of elementary schools, since time is lacking for the mastery of those which do.

Thus in the geography of Illinois Chicago is of great geographical value, Springfield much less, and Kankakee still less, because of its being a much smaller factor in distribution.

The Dividing Function.—In the proper organization of any subject divisions in its subject-matter are necessary. They enable the mind better to grasp the subject. And in making divisions bases of division must be sought. The organizing principle of geography guides the mind of the teacher and learner in making helpful divisions in geography, and this is what is meant by the dividing function of the organizing principle.

The dividing function shows that certain groups of phenomena influence distribtuion in one way and other groups influence distribution other ways. Thus on the basis of the way forces influence distribution divisions of geography should be made. The divisions of geography into Mathematical, Physical, Political, Commercial, etc., are arbitrary to a considerable degree. Geography is geography and any attempt to divorce Mathematical, Physical, Political, etc., militates against proper interpretation.

In concluding this chapter, it is safe to say that the scientific conception of geography is held by very few teachers, and most would not know what one means by an organizing principle in geography. And that the scientific conception, including a definite idea of the

organizing principle, of geography can hardly be over-estimated in value to the teacher of geography.

CHAPTER XXXII.

THE PURPOSE OF GEOGRAPHY.

Meaning of.—Purpose in any subject, it will be remembered, is the effect the mastery of the subject produces in the life of the learner. Thus then, in general, the purpose of geography is the effect that geography studied under favorable conditions will produce in the life of the learner.

Classes of Purpose.—Geography will in a large sense do two things for the one who studies it. It will, first, give a store of knowledge valuable to the learner for guidance in living; secondly, it will furnish mental training, power of thought valuable to the learner in thinking out the problems of life as he comes to them. These two purposes are, respectively, the *knowledge-giving purpose,* and *disciplinary purpose.*

The Knowledge-giving Purpose.—From the valuable knowledge point of view it is the purpose of geography to give the following to the learner:

1. A definite knowledge of the geography of his home life and immediate geographical environment.

2. A good definite knowledge of the most important geographical centers of the world.

3. A clear and positive knowledge that all phenomena of the earth are in entire accord with nature's laws and that these laws are uniform.

4. A positive knowledge that the phenomena of the earth are, as to their distribution, both cause and effect.

5. Knowledge which will furnish an adequate basis for the pursuit of the other natural sciences.

The Disciplinary Purpose.—From the disciplinary point of view it is the purpose of geography to do the following for the learner:

1. To give the learner a fervent, many-sided, enduring, drawing interest in the objects of nature.

2. To correct superstitions by leading the learner into the habit of explaining phenomena by their causal relations to known facts.

3. To give the learner good habits of observing nature around him.

4. To cultivate sense-perception, memory, imagination and reasoning.

5. To give the learner the spirit of free inquiry and free investigation; that is, *the scientific spirit.*

Home Geography.—It certainly is an important part of the purpose of geography to give the learner a definite knowledge of the region immediately surrounding his home; a knowledge of the rainfall, the snow, the average temperature, the length of day and night, the constellations and the planets which may be seen, the hills, creeks, rivers, valleys, marshes, etc., the animals, the common plants, the natural products, routes of commerce, roads and many other things which children may be led to learn first-hand. Such knowledge

with the exercise required to get it would be a pretty good education in itself.

The suggestion here is that it seems unaccountable that teachers as a rule can find nothing in such a wealth of material for lessons in home geography.

At present it is not the rule to do this part of geography work even poorly either in city or country schools.

Knowledge of Important Geographical Centers.—It must be evident that geography is to teach the learner the location and geographical importance of the centers of distribution of the leading countries of the world. Everyone tries in some sort of way to do this. But the difficulty is that in trying to do so there come up so many things to be taught that there is a great tendency to scatter too much in the work. And as a result the learner gets a small knowledge of a great many things but a good definite knowledge of no important geographical centers. His geography work becomes a matter of memory of many things most of which he soon forgets.

So the purpose in this instance is to give the learner a *good, definite* knowledge of the *most important* geographical centers of the countries of the world. Not all geographical centers are to be attempted; only the most important, to as large a number as time and development will permit.

Uniformity of Nature's Laws.—Geography is one of the best subjects in school to teach the learner that nature's laws are uniform and that all the earth's phe-

nomena are in accord with them. This is constantly impressed upon him by tracing the causes which lead up to phenomena. Nothing appears the result of chance. Nothing appears to be special dispensations of Providence. Niagara Falls are just where they are because of perfectly natural conditions. Chicago is not an accident, but the causes which have produced Chicago are entirely and clearly comprehensible from a perfectly natural viewpoint. This becomes a habit of mind with the learner, and he knows it as well as he can know anything inductively. And this point of knowledge is a valuable part of the purpose of geography from the knowledge-giving viewpoint.

Knowledge that Phenomena are Both Cause and Effect.—It is worth while for the learner to know that every phenomenon of the earth looks in two directions, *forward* and *backward*. In so far as its influence looks forward it is a cause of the distribution of something in some way. In so far as it looks backward it has been influenced in some way as to distribution, that is, it is an effect.

The learner should know this; it helps him to understand the world in which he lives; it helps him to think of nature in the right way.

Thus to give the learner as positive knowledge that the phenomena of the earth are as to their distribution both cause and effect is a part of the knowledge-giving purpose of geography.

A Basis for the Study of Other Sciences.—Geography is preeminently adapted to give the learner a

knowledge which furnishes a basis for the study of other sciences. In his geography work he learns something of the solar system, the stars, the comets, and meteors. His knowledge of these things forms a basis for his beginning the study of astronomy.

In his geography study he learns something of rock formation, coal deposits, canons, the glacial drift, the ice age, the formation of soils, fossils, and so on, and this knowledge forms the basis for his beginning the study of geology and mineralogy.

He also in his geography learns many truths of plant life, many truths of animal life, truths of chemistry, truths of solids, liquids, fluids, light, electricity and these truths become basis for the subjects of botany, zoology, chemistry and physics.

Thus geography in the school curriculum forms the child's natural introduction to the natural sciences and lays a good basis for their pursuit. And to do this is one purpose the teacher should hold in mind in teaching geography.

Interest in Nature.—In the earlier stages of geography the work should be mainly the *concrete study of natural objects in their natural environment.* Such work tends toward a strong interest in nature, for such work always proves very attractive to the learner. If well done the learner becomes intensely interested in the objects of nature; that is, his interest becomes *fervent.* Again, if this work is adequately done, the learner will become interested in flowers, weeds, mosses, lichens, mushrooms, trees, corn, wheat and so on; in worms,

bugs, beetles, grasshoppers, flies, moths, butterflies, bees, birds, toads, squirrels, and so on; in rocks, soils, fossils, stars, constellations, planets, etc. That is to say, his interest becomes *many-sided.* And lastly, in doing such geography work such an interest is acquired as will take the learner to the field, forest, and stream; to the planets, animals, soils, rocks, and other of nature's wonderful and beautiful things, and once acquired it will stay with him through life. That is, the interest will become *drawing* and *enduring.*

Thus from a disciplinary point of view, it is one of the purposes of geography *to give the learner a fervent, many-sided, enduring, drawing interest in the objects of nature.*

Correcting Superstitions.—A superstition has been defined as attributing some occurrence to some other occurrence as a cause when actually the antecedent occurrence had no causal connection with the succeeding.

There are a great many popular superstitions which geography may break down by giving the learner the mental habit of actually recognizing causal relations. He thus becomes analytic in thought and no longer believes in the influence of the moon on potatoes, stones in a meadow or shingles on a roof. Neither will he believe in the influence of the stars and planets as fating any one's life to this or that destiny.

Thus it is a part of the disciplinary purpose of geography to break down superstitious habits of thought.

Habits of Observation.—Since the elementary parts of geography work are the concrete study of natural

objects in their natural environment and what is known as field work in geography, the subject gives the learner good habits of observation. He unconsciously acquires the habit of watching the birds, the trees, beetles, flowers and weeds, rocks, toads, snakes, butterflies, soils, fruits, and relief forms, and so on. He comes to have eyes with which he sees and ears with which he hears. He observes the departure and return of the birds, their love affairs, their disappointments and the tragedies in their lives; their food, their friends and their enemies. He observes the form, growth, leaves, flowers and fruit of trees, weeds, and plants friendly to man, and many, many other things in nature around him.

The value of such a mental habit can not well be over-estimated, and it is a part of the disciplinary purpose of geography to give it.

The Cultivation of Sense-perception, Memory, Imagination and Reasoning.—The first-hand study of natural objects and the home geography including field work are eminently fitted to cultivate sense-perception. There is material in this kind of geography work to cultivate sense-perception through sight, hearing, touch, smell and taste, for these aspects of sense-perception are often brought into exercise, and it is through exercise that cultivation is brought about.

Geography is popularly placed first among the subjects in the school curriculum as suited to cultivate imagination. And it is a certainty that almost every lesson calls into activity the imagination. In forming mental pictures of mountains, plains, valleys, plateaus,

rivers, forests, springs, lakes, cornfields, wheatfields, cottonfields, peoples, cities and hundreds of other things the child must use largely his imagination.

A point to be recognized in this connection though is, that the imaginative pictures are always formed out of the elements of one's experience and that, for this reason, no proper cultivation of the imagination can be induced in the learner whose mind is characterized by a poverty of first-hand contact with geographical material. This means that in the absence of the concrete work in home geography and field work, geography can not be largely valuable in cultivating imagination.

If the foundation be well laid in contact with nature in the home geography and in field work, geography may be made one of the most valuable subjects for cultivating the imagination; otherwise, it can not.

There is much exercise of the memory in learning geography. As it is frequently taught the memory drill is almost the whole exercise. But not all exercise of the memory is valuable by any means. Memory may be exercised in such a way as to break down the ability to think. Students may acquire the habit of depending upon their memories almost wholly. Such students frequently do not learn to think very well for themselves.

But geography so taught that the learner shall fix firmly in mind the organizing truth of the subject and see the various phenomena to be remembered as so many instances of this organizing truth cultivates memory in

the very best way possible. Thus taught geography cultivates the memory largely.

Geography is perhaps not usually thought of as a subject good to cultivate reasoning. But, if an interpretation be placed upon geographical phenomena, geography becomes a good subject to cultivate reasoning. Laws of distribution are discovered inductively; geographical concepts are formed inductively, and laws are applied to particular instances of distribution deductively.

Geography used to be thought of as merely an elementary school subject, but now it is regarded as a university subject, in which as high degree of thinking is required as in any other university subject. When geography once is appreciated it will be regarded as one of the best of school subjects to cultivate reasoning.

The Scientific Spirit.—The scientific spirit is the spirit of free inquiry and free investigation. Its watchwords are *experiment, observe* and *think.* It is the attitude of mind in which nothing short of truth satisfies. It is the result of quickening the intellectual hunger of the mind, the soul's passion for knowledge. It is the characteristic of the mind "open to receive, and welcome, and utilize, and enjoy the beauty of unadorned truth and the truth of simple beauty."

The scientific spirit hates the 'immorality of the intellect which withholds, distorts, minimizes, or refuses to acknowledge, the truth.'

The constant exercise in geography in searching for truth leads the learner into the scinentific spirit, and

to do this is a part of the purpose of geography from the disciplinary point of view.

Large Value of Geography.—The above study shows geography to be possessed of much larger educational value than is popularly attributed to it. Geography is a fine subject; wide in extensity and deep in intensity, dignified, scientific and worthy of the highest regard by teachers everywhere.

CHAPTER XXXIII.

THE BASIS OF GEOGRAPHY.

Meaning of Basis.—It will be remembered that basis is the knowledge possessed by the learner upon which the teacher can build in teaching any subject or any lesson. The principle of mind underlying basis is that *the mind in learning naturally goes to the unknown from the nearest related known.* The nearest related known is the basis.

It is presumed that, when the child comes to school at about the age of six, he will have some points of knowledge from which the teacher can lead him to the unknown. These points of knowledge are his basis for studying geography.

Aspects of Basis.—The learner in the pursuit of geography will study *climate, relief forms, minerals, plant life, animal life,* and *human life.* He knows something of each one of these when he comes to school. Thus there will be six aspects of the learner's basis; (1) his basis for studying climate; (2) his basis for studying relief forms; (3) his basis for the study of minerals; (4) his basis for the study of plant life; (5) his basis for the study of animal life, and (6) his basis for the study of human life.

Basis for Climate.—Children's knowledge of cli-

mate before they come to school will vary to a considerable degree, but all know something about it.

Their knowledge of climate will be what is called ordinary knowledge in distinction from scientific knowledge. This ordinary knowledge will in part be *vague* and in part be *definite;* it will be incomplete, *unsystematic;* and will have error mixed with the truth in it.

The learner will possibly know that there is a winter, a summer, a spring and a fall; that it is colder in winter than in summer; that it rains or snows at some times and at other times it is dry; that some days are sunshiny and others are cloudy; that at some times the wind blows and at other times it is calm. He may know that heat comes from the sun. He may have heard that the moon influences the weather, and will likely know something of dew.

His ideas of all these things constitute his basis for the study of climate.

Basis for Relief Forms.—The child's knowledge of relief when he comes to school will be ordinary knowledge, too.

He will probably know something of hills, brooks, creeks, lakes, rivers, ponds, level land, rolling land, springs, soils, islands, and in many cases other things, such as mountains, gorges, passes, etc.

His ideas of these things constitute his basis for the study of relief forms.

Basis for Minerals.—The learner's basis for the study of minerals consists of his ordinary knowledge of perchance coal, the kinds of coal, iron, copper, lead,

zinc, tin, silver and gold. He probably knows coal comes out of the ground, and some will have seen a coal mine. He has seen rocks, has picked up pretty ones and has played with them and has learned something about them. He will know something of the uses of iron, coal, copper, stone, lead, tin, silver and gold.

All of this is his foundation for the study of minerals.

Basis for Plants.—What the learner has learned from experience of plants will constitute his basis here.

All will likely know something of trees; something of grasses; something of weeds; something of flowers; something of apples, pears, cherries, peaches, bananas, oranges, grapes and berries. Many will know that oranges and bananas do not grow in cold countries; that apples, cherries, pears, peaches and grapes do grow in cold countries. Many will know walnuts, hickory nuts, hazel nuts, and something of where and how they grow.

All of this empirical knowledge and any other of a similar kind constitutes the learner's basis for the study of the distribution of plants.

Basis for Animal Life.—The child in most cases when he comes to school at the age of six will have quite a good deal of knowledge of animal life. He will know something of domestic animals. He will likely know the dog, some of the different kinds, their uses, food and habits; the cat, something of its habits, its food and uses; the horse, its food, care and uses; the cow, milk, butter, the food, and other uses of the cow;

chickens, their habits, their food, homes, nests, eggs and young; hogs, their habits, food and uses; birds, and their habits; insects of various kinds, and something of their habits.

Many of them have been to public parks, and shows. All have seen pictures of animals in picture books and in papers and have obtained some sort of idea of them in this way.

These points of knowledge and any additional similar ones make up the child's basis for the study of the distribution of animal life.

Basis for the Study of the Distribution of Human Life.—The child will know more about human life when he comes to school for the first time than about any of the other five points in the learner's basis for studying geography, because he will have had more experience with people than with the others.

He will know something of the distribution of people in the country and something in a general way of their occupations; that many live in cities, and something of their occupations; that there are differently colored people, some white, some black, and some yellow, and that these live in other parts of the world in the main. He will know something about human industries and about the division of labor; some keep store, some are engaged in railroading; some, in banking, some, in mining and some, in farming.

He will know their habits, homes, food, amusements, and distribution of institutions, church, school, and so on.

What is enumerated here and much more along the same line some of the children will know as a basis for the study of the distribution of human life on the earth's surface.

Adequate Basis.—A view of the basis which the child will have as a rule when he comes to school the first time shows that he has an abundance of material for an adequate basis for beginning the study of geography the first year in school. Thus those who do not teach geography to the child early in his school life can not rightly urge lack of basis as a reason. Failure to teach it early must be explained in some other way.

CHAPTER XXXIV.

STEPS IN GEOGRAPHY.

Meaning of.—Steps in geography mean the more or less definite divisions of mental activity in learning geography. They are spiritual things and are in the life of the learner. Thus the mental activity the learner's mind goes through in learning Niagara Falls is one large step in geography. This step could be analyzed into many smaller steps, of course.

Classes of Steps.—There are two points of view regarding steps in geography. One may look at steps as those activities which the mind has in mastering any part of geography, as the mastery of waterfalls, or the mastery of canals as geographical phenomena. Such steps are the *logical steps* in geography. These steps the mind must take in studying any geographical phenomena whatever. They are a necessity to the mastery of any entire geographical point.

Then again, one may study what step the mind should take first, secondly, thirdly, and so on through the subject of geography. That is to say, what the steps are in the order of time. These steps are the *chronological steps* in geography.

The Logical Steps.—As said, these steps are a necessity to the geographical mastery of any entire geographical point.

To grasp a point in geography as a geographical point the mind (1) must think it as a phenomenon of the earth; (2) must think it as to its location; (3) must think it as the effect of distribution; (4) must think it as the cause of distribution.

Thus the logical steps in geography are as follows:

1. The advance of the learner's mind in learning the phenomena of the earth.

2. The advance of the learner's mind in learning the location of the phenomena of the earth.

3. The advance of the learner's mind in learning the phenomena as cause of the distribution of other phenomena on the earth's surface.

4. The advance of the learner's mind in learning phenomena as the effect of the distribution of other phenomena on the earth's surface.

To see the logical steps in geography is helpful to the teacher in that it enables him to see what it means to teach phenomena of the earth geographically, and what it means for the learner to know phenomena of the earth geographically. It guides in geographical interpretation.

Chronological Steps.—These as indicated are the steps in geography from the point of view of order in time. The question here is, What should be done first in teaching geography, what next, and next, and so on through the subject?

The order of the steps here is, of course, the important point in the study of the chronological steps in geography. Much depends upon what is attempted first,

secondly, thirdly, next and next and so on through the subject of geography.

In deciding the order of the chronological steps help may be obtained from a study of the stages in the geography work in school, and to these we will devote some time.

Stages of Geography Learning.—In learning geography the approach of the mind to the subject is different from that of the mind in many subjects. The ultimate unit of geography is the earth as a whole, and the learner can not understand geography well till he sees the phenomena of the earth in relation to the earth as a whole. Naturally, the mind in studying a thing, first, attempts to get an idea of it as a whole; then, it proceeds to analyze it into its larger parts first; study these; then analyze it into its next smaller parts, and so on. But the child can not well do this in the study of the earth. The whole is too large for him in the early stages of school work. In this case it is more natural for the child to learn the geographical phenomena in his near-by environment in the early stages of school work, and reach out a little further and further as he develops, until a stage is reached to warrant his studying the earth as a whole.

Thus, from this point of view there are two stages of geography work. 1. *The synthetic stage.* 2. *The analytic stage.*

The Synthetic Stage.—In this stage the learner puts together his ideas of geographical phenomena as his geographical horizon widens. At first he knows but

a few things of the phenomena of the earth about his home; then, of the immediate neighborhood; then, of township, county, state, and country, and so on.

It is clear that his process of mind in this work is synthetic; that is, it is predominantly a process of building up a larger whole out of smaller parts.

The concrete work with natural objects in their natural environment and the home geography work, upon which so much depends for success in teaching geography come in the synthetic stage of learning geography.

The Analytic Stage.—Eventually the learner reaches a stage of development which warrants his learning an idea of the earth as a whole. He learns its form, its size, its relation to the sun, its motion around the sun, its rotation upon its axis, the phenomena of day and night, the phenomena of the seasons. He learns the meaning of parallels, meridians, zones, zenith, horizon, etc. He learns divisions, continents, islands, countries, states, analyzing into smaller and smaller geographical wholes.

This process of learning is clearly one of analysis in the main; that is, a process of separating a whole into smaller and smaller parts, and the study of these parts in relation to the whole.

Most of the work of advanced geography is in the analytic stage.

There is some ground for looking at the stages in geography teaching from a different point of view from

that just studied above, from a kind of development point of view.

There is a time in the earliest part of the child's school life in which it has been found better to do a line of work preparatory to the real geography work to come later. In this stage the learner would learn some geography, but the stage would be more as a preparation for the real geography work later.

Then there is a second period in the teaching of geography in which the child studies geography work proper, but the work is not so abstract, not analytical as later on. This in general is what has popularly been called the *primary* geography work.

And lastly there is a stage of geography work which is analytical, and difficult, if carried out very far. In a rather broad general way it is what is called *advanced* geography.

Thus from this general point of view of development in teaching geography there are the three following stages in geography teaching: 1. The preparatory stage. 2. The primary stage. 3. The advanced stage.

The Preparatory Stage.—Approximately this may be made to cover about the first two years of the learner's school life. It is the stage in which the child is led to study the *natural objects* around him in their *natural environment.* It is concrete, first-hand work with the animals, plants, rocks, soils, ponds, hills, brooks, and so on in the community where he lives.

The work in this stage is not to be differentiated at all from the nature study work of these same years.

The child is learning the things of nature, and to use his eyes and ears and hands in becoming acquainted with some of the thousands of wonderful, beautiful, and good things in touch with his life.

As the name of the stage signifies, the work is preparatory to geography work proper, and is the best preparation possible for real geography work. In this work no strict geographical interpretation is placed upon the phenomena learned. The things are learned as phenomena merely.

The Primary Stage.—This stage covers about three years in the learner's school life, the third, fourth and fifth. The scope of the stage will vary with changing conditions, depending upon the progress of the learner, the length of the school year and so on, but in a general way it should cover the years indicated.

The work of these three years consists of what is called home geography, mastery of general ideas of geographical elements, and type studies.

In the home geography, lessons are given first on food supplies and connected occupations; that is, on gardening, farming, fruit growing, dairying, poultry raising and stock raising. Secondly, on building material and connected occupations. Thirdly, on clothing material and connected occupations. Fourthly, on local relief forms. Fifthly, on local commerce. Sixthly, on local government. And seventhly, on local trade and manufacturing.

This work is to be made quite largely field work;

that is, the children should study these things first-hand as much as possible.

In the mastery of the general ideas of the geographical elements, the child learns the ideas, mountain, hill, plateau, island, volcano, river, lake, gulf, peninsula, etc. This work is to be done inductively in so far as posible.

For instance, if the idea, island, is to be taught, the teacher should find a miniature island somewhere near the school if possible, and visit it with the children. She should direct them in looking at it so they can see the essential truths about it. Then the children should make an island on the sand board. Then they should visit some islands by imaginary journeys.

The teacher next has the children to make lists of the truths they found out about each island, one list for each, and then drop out all the truths except those which every island possesses. The lesson is finished by having the children make a statement for what an island is.

The other general ideas of the geographical elements are to be taught in the same way; that is, inductively.

In the type studies, types of geographical phenomena are studied intensively. For instance, the Wabash River might be studied intensively as a type of river; Peoria, as a type of city, etc.

This work is better done without any regular textbook in the hands of the learner.

The Advanced Stage.—This stage includes the rest

of the learner's geography work in school. The text-book is placed in the learner's hand, and he is taught the earth as a whole; its form, size, revolution around the sun, rotation upon its axis, the phenomena of the seasons, the phenomena of day and night, divisions, islands, continents, countries, states, etc.

This work is analytic, and a strictly geographical interpretation is placed upon the phenomena studied.

The Chronological Order.—In the light of the previous study the nature of the geography course throughout the eight years of primary school work may be pretty well mapped out. The following could be profitably done:

FIRST YEAR.

A line of concrete study of the natural objects around the child in their natural environment. The lesson should be first-hand study, conducted orally, and correlated with primary language.

SECOND YEAR.

A continuation of the first year's work. The work should be correlated with primary language, spelling, reading and writing.

THIRD YEAR.

A line of home geography work, the study of food supplies and connected occupations; farming, gardening, flower growing, fruit growing, poultry raising, dairying, and stock raising.

A study of the general ideas, *river, lake, mountain,*

hill and *pond.* The imaginary journeys go along with this line of work.

No text is placed in the hands of the learner. The work is conducted by oral teaching, and field work, and is correlated with primary language, reading, writing and spelling.

A geographical interpretation is placed to some extent upon the phenomena studied.

FOURTH YEAR.

A line of home geography work; (1) the study of building materials of the community and connected occupations; (2) the study of clothing materials and connected occupations; (3) further study of food supplies and connected occupations.

A study of the general ideas, *volcano, plain, plateau, gulf, bay, peninsula,* and *isthmus.* The imaginary journey work is to be done in connection with teaching these general ideas inductively.

No text is placed in the hands of the learner this year. Oral teaching is used, field work is done, and the work is correlated with primary language, reading, spelling and writing.

A geographical interpretation is placed upon the phenomena studied to a somewhat larger extent than in the preceding year's work.

FIFTH YEAR.

A line of home geography, (1) the study of the surface structure of the community; (2) a study of the minerals of the community and connected occupations;

(3) a study of the manufacturing of the community; (4) a study of the trades of the community; (5) a study of local commerce.

No specific text is placed in the hands of the learner. Field work and oral teaching are followed out, and the lessons are correlated with language lessons, spelling, reading and writing.

The teacher now begins to lead the learner to interpret geographically the phenomena studied, in so far as ability and time will warrant.

SIXTH, SEVENTH AND EIGHTH YEARS.

The work of these years falls in the Analytic Stage of geography learning. The text-book is placed in the hands of the learner, and such divisions of the work are made as the conditions under which the teacher is teaching warrant.

Of course, the learner is first to be taught the earth as a whole, and its movements in the Solar System. Then he proceeds in the analytic work.

A strictly geographical interpretation is placed upon the phenomena studied in these three years.

With the work of the five preceding years done even fairly well after the plan indicated in these studies, the learner's progress will be rapid, positive and pleasant.

Comment.—It is not the intention to say that the order of chronological steps explained in these studies is the only pedagogical order, but it is the intention to say that the order indicated is a good one. Neither

is it supposed that conditions are such that every teacher can teach as indicated here, but something toward such work can be done by every teacher, and much can be done by many, and it is worth the effort.

Nature Studies.—In the first two years of the geography work natural objects are to be studied first-hand. This work is not differentiated from the Nature Study in the curriculum. So the way of dealing with the objects studied will be the same in the two subjects. This will be explained at length under "Steps" in the method of nature study. For this the reader is referred to page 468.

Oral Teaching.—Throughout the first five years' work the teaching is largely oral. The manner of it is as follows: first, the teacher and children study some nature object first-hand for maybe several days. Then an oral recitation is conducted by the teacher's asking such questions as will bring forth the truths which the teacher has been striving to have the learner see. The learner answers orally. No books are used by the children.

Secondly, in the imaginary journey work in teaching the general ideas of the geographical elements, the teacher gives the journey in as realistic a way as possible in story form. The children recite on it later orally, or in writing, if the teacher desires.

Thirdly, in the field work, students and teacher study the phenomena first-hand. Then oral or written recitations or both are conducted on it.

Such work is called oral work and it possesses many points of advantage over book work.

Imaginary Journeys.—The imaginary journeys are given orally by the teacher in story form in teaching the general ideas of the geographical elements. They enable the student to study particular cases in learning the general ideas of the geographical elements inductively. The student also gets many ideas of the greatness of the earth, the diversity of its phenomena, and the distribution of its people in the work of the imaginary journeys.

Type Studies.—The study of types is a great economizer of time and energy in geography work. When the learner has studied intensively one type, New Orleans, for instance, he has learned the essential truths of all similar cities and a basis of comparison, which has become to him an instrument of thought. Thus type studies enable the learner to interpret geographical phenomena.

Type studies have the following advantages:

1. They save time and energy.
2. They form bases of comparison.
3. They enable the learner to interpret geographical phenomena.
4. They form centers of study around which geographical phenomena cluster.
5. They prevent to some degree the scattering geography work so common in the schools at present.

Field Work.—Geography without field work lacks the best thing there is for the learner in geography, the

vitalizing relation which should exist between the phenomena of the earth and the learner. Without field work the learner will never catch the spirit of geography. The study of the book, the chart, the map or the globe is all but dead to him. There are thousands and tens of thousands of teachers talking loud and long about phenomena of the earth in their classes who would not know said phenomena if they should meet them face to face in the road—mere babblers from books.

The geography class should be taken to see all sorts of geographical phenomena to be found in the neighborhood, and there are many in every neighborhood, then the data gathered should be made basis for both oral and written lessons in geography. The teacher who can not get interested in this work and who can not do some of it is certainly an object of commiseration.

CHAPTER XXXV.

DEVICES IN TEACHING GEOGRAPHY.

Meaning of.—Devices in any subject are the external means used in the process by which the learner is led to learn the subject; that is, in the teaching act. They are external to the mind of both teacher and learner and thus are always physical in nature.

The following is a list of the main ones used in teaching geography: 1. Assignments. 2. Class discussions. 3. Field work. 4. Text-book. 5. Maps, globes, etc. 6. Map drawing. 7. Reference library. 8. Sand Table. 9. Outlines. 10. Imaginary journeys.

Assignments.—Assignments are in many respects the most important device in teaching. It is difficult to say which is more important, assignments or class discussions. These belong to a preeminent order of importance.

The nature and quality of the recitation, the progress the learner makes, his habits of study and his attitude toward the subject of geography are determined largely by the assignments the teacher gives.

Each assignment should have the following characteristics, in geography: (1) it should be pointed and definite; (2) it should place specific problems before the learner to be solved; (3) it should put these problems

before the learner so that he can solve them; (4) it should lead the learner to solve the problems in the right way; it should usually tend toward the geography habit of mind.

With such assignments success in teaching geography will further depend almost wholly on the class discussions.

Class Discussions.—Class discussions are the most important device in teaching geography with the possible exception of assignments. It is in the class discussion that the teacher holds the learner to the responsibility of working out the assignment. Class discussions in geography enable the teacher (1) to test the learner on his preparation and understanding of problems given him; (2) to supplement the knowledge he got in the preparation of the assignment; (3) to lead the learner to place a geographical interpretation upon the phenomena he studies; (4) to give the learner right habits of studying geography.

In the use of class discussions the teacher has the greatest opportunity for the display of skill and tact in artistic teaching. Here he will manifest what strength as a teacher he has, or never. Thus class discussions prove to be a device of great importance in teaching geography.

Field Work.—By the field work is meant, of course, studying geographical phenomena first-hand out in their natural environment; the study of the actual hill, brook, creek, tree, rock, spring, lake, animal, etc., in its natural surroundings. The value of going into the

field and doing such work can hardly be overestimated as a device in geography teaching. It does the following desirable things for the learner:

1. It develops and fosters the vitalizing relation which should exist between the learned and nature.

2. It tends to give the learner the spirit of geography.

3. It quickens the senses and sharpens the wits of the learner.

4. It lays a sure, concrete basis for the geography of the analytic stage.

5. It is the best device to help the learner to form the geography habit.

Text-book.—The text-book is a mere device in geography teaching, but a very important one. Much of the information concerning the phenomena of the earth can most conveniently be obtained by the learner from the text-book in geography.

Most text-books in geography, though, treat of too many things and have too little to say about the important things. That is to say, they are too extensive but not sufficiently intensive. And no text-book in geography is entirely adequate. In good teaching the text-book must be supplemented frequently, and much in almost any text may be omitted and in many cases should be omitted.

Maps, Globes, etc.—Maps of various kinds are a valuable device in teaching geography. By their means the learner is able (1) to get the relative location of phenomena; (2) judge distances; (3) trace commercial

routes; (4) better to remember geographical facts; (5) better to interpret geographically the phenomena of the earth.

It would be much more difficult to learn geography than it now is were there no maps, and much more difficult to teach it, too. But however valuable they are found to be, still they are a mere device. A knowledge of the map is not a knowledge of geography, nor is a knowledge of the map even a guarantee of a knowledge of geography.

Globes, etc., have in general similar uses to those of the map and are valuable devices.

Map Drawing.—Drawing maps may be a useful device in teaching geography or it may be all but useless. If the learner be led to study locations in the field work in geography then map the region studied originally, if this be what is meant by map drawing, it is a very useful device. And this is the very kind of map drawing which should be done in the synthetic stage of geography teaching. A good deal of it should be done in the early geography work to the end that the learner may grow into an appreciation of the real meaning of the map; that is, that he may learn correctly to interpret the map.

But if map drawing be made to mean merely copying maps from the book or some other place either with the map to be copied before the learner or from memory, then map drawing is worth very little as a device in teaching geography. The time spent on such work is largely wasted.

Reference Library.—A good reference library is indispensable to the best geography teaching. In the type studies it is desirable to study each type intensively, and to do so it is necessary to have other sources of information than the regular text-book. When it is desirable to have the learner study any topic in geography intensively, he needs the reference library as a source of information.

Sand Table.—The sand table is a very useful device in teaching primary geography. The learner may be sent to it with much profit and pleasure to work out his idea of river, hill, plain, mountain, island, peninsula, etc. Its value is in the opportunity it gives the learner to concrete his ideas, and create geographical phenomena in miniature. This, of course, makes the ideas vivid and easily remembered.

Outlines.—Outlines are a valuable device in geography teaching if made by the learner. They are valuable as organizers. They introduce order and system into the work, and if made by the learner, lessen the effort of memory largely. But if made by the teacher, they lose very largely their value in geography teaching; they are still though of some value to the learner as organizers.

Imaginary Journeys.—Imaginary journeys are a valuable device in the primary stage of geography work. They find their value in the following two things:

1. They are a means by which the teacher may lead the learner to study particular cases of the geo-

graphical elements in teaching the general ideas of these elements inductively.

2. They give the learner good general ideas of the greatness of the earth and its people, and the variety of climate, relief forms, plant life, animal life, and human life on the earth's surface.

The imaginary journey should be made realistic to the learner to as large a degree as possible, if best results are to be obtained.

CHAPTER XXXVI.

COMMON ERRORS IN TEACHING GEOGRAPHY.

Prevalence of Errors.—To the student of psychology and methodology there seem to be many errors common in geography teaching as currently done. Among the most flagrant of these are the following: 1. Teaching geography unscientifically. 2. Scattering over the subject too much. 3. Failure to teach home geography. 4. Lack of field work. 5. Making geography work a mere memory drill. 6. Failure to place a geographical interpretation upon the phenomena of the earth.

Unscientific Geography Teaching.—Unscientific geography teaching grows first out of the view that geography is not a separate science in itself, but is a composite of a number of sciences; and secondly, out of the view that geography is the study of the earth as the home of man. That is to say, it grows out of the popular and anthropological views.

The first view leads to unorganized work. Scraps and fragments of geography are taught too much isolated. As one educator puts it, it is taught as "hash" made up from the different sciences. No organizing principle is seen in the subject; the remembering of the facts depends upon intense application, and the wrong mental attitude toward geography is acquired.

The second view is inadequate and leads the learner to the idea that all phenomena of the earth are to be interpreted as providentially occurring for man's benefit.

The results of these errors are (1) the learner gets wrong ideas of what geography is; (2) he gets only a disorganized knowledge of geography; (3) he fails to grasp the subject so as to remember it well; (4) he acquires unscientific habits of mind.

Scattering Too Much.—Scattering in teaching geography is a widely extended error. It is the besetting sin in the teacher's work in geography almost everywhere. It grows out of following too closely text-books in geography. A large number of things are learned in a very vague way by the learner from the text and remembered long enough for him to recite in the recitation. Almost nothing is woven into his fabric of knowledge in a permanent way. He learns a little of a large number of things in geography, but not very much of any one thing. Indeed in such work it can truthfully be said that the teacher scatters all over creation. Such work has two undesirable results: 1. It gives the learner knowledge so scattering and vague that it is of little worth to him. 2. It gives the learner a very bad attitude of mind and undesirable habits of study.

Failure to Teach Home Geography.—In very few schools is there a systematic line of home geography work done. In consequence the learner grows up ignorant of the geography of his home region. He knows only in the most general and vaguest sort of way the

distribution of relief forms, the trees, the flowers, weeds, fungi; the fruit, vegetables, cereals, grasses; birds, frogs, snakes, beetles, bugs; rocks, clays, sand, soil, and other minerals, etc., of the immediate region in which he is reared. And a knowledge of these things is the only adequate basis which the learner can possibly have for studying the geography of other regions.

And a knowledge of these things studied in home geography is the most practical sort of knowledge the learner can acquire, valuable for the guidance it gives him in living and valuable for the happiness he gets from the intimate acquaintance with the perennially interesting natural phenomena.

To neglect such work robs the learner of so much opportunity to attain the possibilities of life that it is a great error.

Lack of Field Work.—No first class geography teaching ever has, or ever can be done without bringing the learner into actual touch with nature. And the only way to do this is by field work. Work in the laboratory is concrete and is superior to the more abstract work, but even it will not suffice. It has an element of unnaturalness in it. Nothing short of studying natural phenomena in their natural environment will give the learner the first-hand knowledge, a supply of which is entirely necessary to all good geography teaching.

To neglect the field work in geography leaves a sort of haziness, an insufficiency in the mind of the learner

which no amount of other kind of teaching can overcome.

This error is wide-spread in geography teaching, for few teachers do field work in their teaching.

Making Geography a Memory Drill.—Much of the geography work done in school at the present is hardly more than a mere memory drill. Children remember rivers as crooked lines, cities as little circles or checkered places on the map, capitals as little stars, etc. They are asked to remember hundreds and thousands of these, and made to think that they are studying geography.

Some children were reciting their geography lesson on the New England states. A visitor asked permission to ask them a question. It was granted. He said, "If your teacher should lie down with her feet at the southern boundary of Massachusetts, where would her head be?" The various children in the class had her head all the way from the St. Lawrence River to the North Pole.

So geography frequently degenerates into not only a memory drill, but into a very *formal* memory drill, an exercise in remembering words.

Goegraphy taught in this way loses most, if not all, of its educational value. And not only that, but such work is likely to be educationally degenerating to the learner.

Lack of Interpretation.—A common kind of geography teaching is that in which facts of geography are taught without having the learner to place a geographical interpretation upon these facts. For instance, Chi-

cago is said to be located in Illinois at the southern end of Lake Michigan, its population given and passed by at that. What distribution of terrestrial phenomena caused Chicago to be the size it is, and to be located where it is, is not worked out, nor is the distribution which Chicago is the cause of worked out either. That is to say, no geographical interpretation is placed upon Chicago as a geographical fact.

And in general what is true of Chicago is true of other geographical phenomena; that is, they are left uninterpreted.

Such teaching (1) makes geography a subject worth very little to the learner; (2) gives the learner the wrong idea of the subject; and (3) is unscientific.

CHAPTER XXXVII.

THE SUBJECT-MATTER OF NATURE STUDY.

Nature of.—Nature Study deals with natural objects. It not only deals with natural objects, but essentially deals with natural objects in their natural environments. It is concrete, first-hand study of these objects, too.

The study of a sawmill, of a locomotive or of a dwelling house might be valuable study for the learner, but it would not be nature study; for the sawmill, the locomotive and the dwelling house are not natural objects. They are artificial.

The study of natural objects in the laboratory or museum is not adequate for a working concept of nature study. Much of nature study can not be studied at all in the laboratory nor museum. In fact very little of nature study can. Objects of nature are unnatural in the laboratory or museum in most instances. For instance, bird life and habits can not be studied in the laboratory nor museum at all. It degenerates into a study of bird death. Thus in the concept of nature study is the element of *natural environment.*

And again the abstract, second, third or fourth-hand study of natural objects in their natural environment is not the full idea of nature study. The idea is

contact study; knowledge got first-hand. The seeing, hearing, tasting, smelling, and touching those objects which appeal to the senses of the learner is an element in the idea of nature study.

From these various elements the following definition of nature study is reached: *Nature Study is the concrete, first-hand study of natural objects in their natural environment.*

Nature Study and the Sciences.—Nature study has been defined as "Primary science." The point of view in these studies is that nature study is not science, primary or any other kind, in the sense in which science is usually understood. Any science is a body of truth systematized; that is, organized around some organizing principle. Thus, the truths of plant life organized around a principle constitute *botany;* the truths of animal life organized around a principle constitute *zoology;* the truths of chemicals organized around a principle constitute *chemistry, etc.* In nature study the learner studies truths of plants, but he does not organize them so as to make botany; he learns truths of animals, but he does not organize them so as to make zoology; he learns truths of chemicals, but he does not organize them so as to make chemistry. Thus nature study is not primary botany, primary zoology, primary astronomy, etc. It is just nature study.

The definition that makes nature study elementary science is a source of mischief in nature study work. It influences teachers really to try to make nature study

teaching a kind of science teaching, which has been found time after time to be all but a failure.

The Development of the Race and Nature.—In the long struggle of the race up to savagery and from savagery through barbaric life to civilization, Nature has unquestionably been its greatest teacher. To procure food for the self and for the offspring, and to protect the self and the offspring have been the main cares of the human species upon the earth for all time. In this there has constantly been a hand to hand conflict with Nature. She must yield food to the human species. The human species must protect itself against Nature. This has led to constant struggle, and the strength born of this struggle has been the greatest *educating force* the race has ever had.

The individuals of the race who learned how to do these two things, (1) procure food for the self and young; (2) protect the self and the young, survived in the struggle and those who could not learn these two lessons perished. *Thus Nature teaches.*

It thus appears that Nature in teaching the race bore fundamentally an *economic* relation to the race, the relation of food and protection, and as a means to this an *intellectual* relation. The intellectual development resulting from Nature's teaching enabled the race better to solve the problems of food and protection.

While under Nature's teaching the human species developed *physically* and *intellectually,* the development was not limited to these two aspects of life. Under

the influence of Nature, the human species has become *aesthetic, social, moral,* and *religious.*

The response to harmony, variety and unity, and rhythm in nature has made the human race aesthetic.

The necessity of cooperation in obtaining food and in protection has made man social, and growing out of his social life social influence together with nature's influence has made man moral and religious.

So let it be repeated that Nature has always been the great teacher of the human race.

"And Nature, the old nurse, took
The child upon her knee,
Saying, 'Here is a story book
Thy Father has written for thee.' "

It thus appears that Nature has influenced the race first and largely *economically,* then *intellectually* as a means to the economic; then *aesthetically, socially, morally* and *religiously,* in its development up to savagery, through savagery and barbarism to civilized life.

The Child.—In a very much fuller sense than the popular mind knows the child in his growth and development repeats the history of the race. He passes through the same stages in his physical development that the species which became human passed through, and he passes through the same stages in general sociologically which the race passed through. Thus the child in his growth and development is an epitome of the growth and development of the race.

Since this is true, and since nature played such an important role in the education of the race, it seems

that nature study should occupy a very important place in the education of the child; also, that he should study nature in about the relation it bore to the race in the race's development.

The Subject-Matter of Nature Study.—It is to be remembered again that a subject-matter is the *material of study* and that each subject-matter consists of two things, a set of facts and the relation of these facts.

The facts to be studied in nature study are natural objects in their natural environments and the relation in which they are to be studied is the relation which natural objects bore to the race in its growth, as nearly as can be determined. The following is the formal statement for it:

The subject-matter of nature study is natural objects in their natural environments in the relation which natural objects have borne to the human race in its growth.

It was shown above that the relation which natural objects have borne to the race has been primarily *economic* and *intellectual,* but also *aesthetic, social, moral* and *religious.*

The Organizing Principle.—The organizing principle of nature study is the relation in which the truths of natural objects as facts are to be studied. It is this organizing principle which makes nature study different from the sciences. It may be stated as follows: The organizing principle of nature study is *the relation between the objects of nature and the economic,*

intellectual, aesthetic, social, moral and religious aspects of man's life.

Functions of the Organizing Principle.—The organizing principle of nature study is helpful to the student of nature study in various ways, the chief of which are three, *selective, interpreting* and *emphasizing.*

The Selective Function.—The field of natural objects is almost unlimited; so large is it that comparatively only a few things can be studied in a lifetime. Since this is true a selection of natural objects for study must be made, and the organizing principle of nature study helps the student of natural objects to do this. It indicates to the student to select those natural objects which affect largely man's life economically and intellectually, aesthetically, socially, morally or religiously, or in all these aspects. It indicates that things in nature which hardly affect man's life at all would not be selected for nature study work. If plants, they might be studied in botany; if animals, they might be studied in zoology, but not in nature study. They have not had much to do with the race's development.

The Interpreting Function.—The learner has interpreted the truths of any object in nature only when he has traced out their relation to the various aspects of man's life.

For instance, if the May beetle were studied through its life history, the learner would simply know the May beetle as a fact, but to place a nature study

interpretation upon it is to learn its relation to man. It has a very important economic relation to man.

Thus the organizing principle of nature study indicates to the student the interpretation to place upon nature study objects, and this is its interpreting function.

The Emphasizing Function.—Not all the objects of nature selected are of equal importance in nature study. Some are very much more important than others and should be emphasized much more than others.

The organizing principle of nature study indicates that those objects of nature which have had large influence on the life of the race should be emphasized largely and that those which have had less influence should be emphasized less.

For instance, the Codling moth should be dwelt upon till the learner knows it most thoroughly as an object of nature, and also till he knows its large economic relation to man.

To indicate to the student of nature study the degree of emphasis to place upon the natural object studied is the emphasizing function of the organizing principle of nature study.

CHAPTER XXXVIII.

THE PURPOSE OF NATURE STUDY.

Meaning of.—The purpose of nature study is the effect on the life of the learner which the proper pursuit of nature study produces. This effect will in general be of two kinds. The learner, first, in the pursuit of nature study will acquire a large stock of very useful knowledge; and, secondly, he will get a mental training unsurpassed by any subject to be studied in school. The two purposes are (1) *a knowledge-giving* purpose; and (2) *a disciplinary purpose.*

The Knowledge-Giving Purpose.—Of the valuable knowledge which it is the purpose of nature study to give the following are important points:

1. A first-hand knowledge of much of the animal life in the child's environment, both friendly and unfriendly to man.

2. A first-hand knowledge of much of the plant life in the vicinity of the child's home, both friendly and unfriendly to man.

3. A first-hand knowledge of the soils in the vicinity of the child's home.

4. A first-hand knowledge of the climate of the region about the child's home.

5. A first-hand knowledge of the surface structure of the earth in the region of the child's home.

6. A knowledge of the heavenly bodies visible to the learner in the region of his home.

Knowledge of Animal Life.—The race's early relation with nature was mainly biologic; that is, connection with animal and plant life; at first predominantly with animals, then later, with plants.

The race's early relation with nature was also economic, the struggle for food and clothing, and protection for self and offspring; and the race's most fundamental relation to nature to-day and always is *economic, the struggle for food, clothing* and *protection.*

The knowledge of animal life which it is the purpose of nature study to give is thus economic and fundamental, and has always been so, and will always be so.

Such knowledge is practical knowledge, and practical knowledge is the only kind of knowledge worth striving to obtain.

It is in this aspect of nature study that the learner learns much about the horse, the cow, the hog, the sheep, the goat, the dog, the cat, the rabbit, the squirrel, the rat, the mouse, the mole, etc.; much about the robin, the oriole, the bluebird, the various kinds of blackbirds, the crow, the jay, the sparrows, the woodpeckers, the hawks, the owls, poultry, the threshers and other birds; much about toads, snakes, turtles, lizards, etc.; much about flies, mosquitoes, bugs, beetles, moths,

butterflies, etc.; something about worms, and other kinds of animals.

What knowledge could be of more value to the learner from the economic point of view than the knowledge of this animal-human relation is inconceivable.

So this purpose of nature study is so important that it can not well be over-estimated.

A Knowledge of Plant Life.—The race's relation to plant life in the past and at present is mainly economic, though not entirely so. Plant life and animal life, too, have aesthetic, social, moral and religious relations to mankind. But to minister to man's physical needs has been the great use of plants to man for all time. The intellect of the race has been developed, of course, in getting a knowledge of plants, but the knowledge has always pointed largely to economic ends, a supply of food, clothing and shelter.

In this aspect of nature study the learner should learn much about corn, wheat, oats, domestic grasses, and other forage plants; apples, plums, pears, peaches, cherries, quinces, and grapes; strawberries, blackberries, raspberries, gooseberries and currants; potatoes, cabbage, asparagus, tomatoes, celery, beets and other vegetable foods.

He should learn much about trees, the elms, oaks, hickories, linden, walnuts, maples, beeches, etc.; much about weeds, poisonous plants, flowers, domestic and wild; something of bacteria and other fungi.

This knowledge obtained in nature study work is first-hand knowledge, practical and concrete.

It is evident that such knowledge is highly valuable and that to give the learner such knowledge is an important purpose of nature study.

A Knowledge of Soils.—The learner in nature study should learn something of the soils; clay soil, loam soil, sandy soil and muck soil; their physical composition and their adaptability to plants. This is a part of the nature study work.

A Knowledge of Climate.—In the nature study work something of climate should be learned in relation to man's economic interests. This work should be chiefly observations of weather conditions.

A Knowledge of Surface Structure.—It is a part of the purpose of nature study to teach the learner something of the surface structure of the region where he lives. He should be led to see the depth of the soil, clays, gravel; how near rock is to the surface; in short, what he would find if he should go straight down; also, the creeks, ponds, lakes, swamps, etc., in the neighborhood.

Knowledge of Heavenly Bodies.—The heavenly bodies have always been objects of wonder and speculation to the race, and have always been thought by a large part of humanity to have some very close connection with the life of man.

Something of what is known of these should be taught in nature study; a few of the constellations, Orion, Great Bear, Little Bear, Cassiopeia and a few others.

The Disciplinary Purpose.—Of the disciplinary

purpose of nature study the following are important points:

1. To maintain and give the learner a fervent, many-sided, permanent interest in the objects of nature.

2. To teach the learner how to use his eyes, ears, nose, mouth and hands in getting a knowledge of nature; that is, to give him good habits of observation.

3. To instill into the learner a love of nature.

4. To cultivate sense-perception, memory, judgment and reasoning.

5. To give the learner the spirit of free inquiry and free investigation; that is, the *scientific spirit.*

Interest in Nature.—The learner before he comes to school has a native interest in nature, but usually after he comes to school this native interest is starved and lost. He is drilled on book work to the exclusion of any work which would keep alive this interest in nature which he has when he comes to school.

To maintain what interest the learner has in nature when he enters school is a part of the purpose of nature study in school.

Everyone knows that he finds time to do that in which he is most interested. So it may be safely assumed that the learner will learn many of the things which he should know about nature, if he has a strong enough interest in nature.

To give the learner this fervent interest in many objects of nature so that nature will attract him, and to make it permanent in his life is certainly a purpose of nature study.

Habits of Observation.—Most people have lamentable habits of observation of nature around them. They have eyes but they do not see, they have ears but they do not hear. They get only a small part of the knowledge and pleasure out of life which natural objects could furnish them. Most people do not so much as recognize at sight the common birds, the common weeds nor the common trees of the region in which they were reared. Such dense ignorance is not correctly to be attributed to lack of opportunity, but to a lack of habits of observation.

To give the learner the habit of using his eyes, ears and other senses to the end that he may improve his opportunities to acquaint himself with the wonderful and valuable things of nature around him is a purpose of nature study.

A Love of Nature.—The one who loves nature gets much more out of life than the one who does not. He always sees something to admire, to attract, to look forward to, and to hope for. He gets happiness from winter; with glad expectancy he awaits the coming of spring; he gets life from the summer sunshine and developing nature, and sees with joy the maturity of autumn.

> "To him who in the love of Nature holds
> Communion with her visible forms, she speaks
> A various language."

Fortunate is the child who early learns to love fervently nature. It will prove one of his greatest blessings.

It is one of the purposes of nature study to teach the learner a love of nature, and he is likely to grow into such a love in his first-hand work with the objects of nature.

Cultivation of Sense-Perception, Memory, Judgment and Reasoning.—Any faculty of mind is cultivated by normal exercise. And no other school subject is quite so well adapted to furnish normal, healthy exercise to sense-perception. Every lesson is an exercise of sense-perception. Contact with the objects of nature calls forth, strengthens, and quickens sense-perception to a degree not possible in any other kind of school work.

All cultivation of memory consists in building up complex systems of association. In nature study a nature study system is built up. It consists of many things woven into a system by correlations, repetitions, feeling and attention. But weaving knowledge into systems in this way is to cultivate memory as effectively as is possible.

Tracing out the animal-human relations and plant-human relations in nature study is a most excellent exercise for the cultivation of judgment and reasoning. It is noticable that those who are good nature study students are as a rule good thinkers. But to be a good thinker means to have good judgment and be a good reasoner.

Nature study gives the learner exercise in the kind of reasoning he needs so largely in life, the kind of reasoning that enables him to adapt himself to his natural environment and his natural environment to

himself. In no other kind of reasoning does the learner need to be more skillful.

Thus it is quite a large part of the purpose of nature study to cultivate sense-perception, memory, judgment and reasoning.

The Scientific Spirit.—The scientific spirit is the spirit of search for the truth; the spirit that is not afraid to search for truth; the spirit of investigation that the truth may be found. It is the attitude of mind that makes anything short of the truth hateful; that believes in the sufficiency of truth; that believes in the ultimate triumph of truth. It is the spirit of free inquiry and free investigation and its watchwords are experiment, observe, think.

Nature study leads the learner gradually into this attitude of mind by leading him to deal with truth constantly obtained first-hand. And to do this very desirable thing is a part of the purpose of nature study.

CHAPTER XXXIX.

BASIS AND STEPS IN NATURE STUDY.

Meaning of Basis.—Basis in nature study is what of nature the child knows when he comes to school upon which the new work can be founded.

Since the nature study work is to be mainly biologic, the learner's knowledge of animals and plants, which he brings to school is mainly his basis for nature study.

Of these, animals and plants, different children will have widely different degrees of knowledge, and different ideas of the relations of those they do know to man.

Their knowledge will be of the popular kind containing fragments of truth mixed with error and superstition which passes for truth.

Many children have a dislike for the common toad because of the superstition that "he makes warts on one's hands," but they must not kill him because "that will make your cows give bloody milk." Thus one superstition may negative another.

The dragon fly, "snake doctor" doctors the snakes; the hawks and owls are all bad, because they catch chickens, and the woodpeckers peck holes in the trees and kill them. These and other popular errors concerning nature many children bring to school with them.

In this web of truth, error and superstition the teacher is to find the learner's basis for nature study.

Meaning of Steps in Nature Study.—Steps in nature study are those movements of the learner's mind in learning the various nature study objects. They are movements forward; mental advances. For instance, the advance of the learner's mind in learning the life of the robin is a step in nature study. Such a large step as this can be analyzed into many smaller steps of course.

Classes of Steps.—The steps in nature study which refer to the various topics to be studied in the nature study course from the standpoint of time are the *chronological steps* in nature study. They have reference to the sequence of the topics studied in the different years. When one knows the chronological steps in nature study he knows what to have children study in the first year, in the second year, and so on through the course. The chronological steps determine the extensiveness of the nature study course.

What to do with each topic studied in the nature study work is a question of the *logical steps* in nature study. The logical steps indicate what to have the learner to do with each nature topic studied; that is, how treat the topic. The logical steps in nature study determine the intensiveness of the work.

There are thus two classes of steps in nature study: 1. The *chronological.* 2. The *logical.*

Chronological Steps.—It is probable that no two persons in making out a course of study in nature study

to be followed through school would agree on the various topics to be included. The reason for this is that the field from which choice is to be made is so large that material might be chosen from it for a hundred courses, all good, yet differing in many respects. For this reason, no specific course of topics will be selected in this study. The individuality of the teacher, the local conditions and so on should determine to some degree what topics to study.

But since the race's relation to nature was so largely economic, and since the economic relation is so largely valuable, the economic aspect of nature study should be emphasized strongly.

"And sure good is first in feeding people, then in dressing people, then in lodging people, and lastly in rightly pleasing people, with arts, or sciences, or any other subject of thought."—Ruskin.

And since the race's early relation to nature was mainly biological, relations to plants and animals, the topics of the nature study course should be mainly biological, animals and plants. Animals and plants also possess the greatest direct interest to children.

Thus the nature study course should be mainly made up of animal studies and plant studies, though not entirely, and the *economic aspect* should be strongly emphasized, though not to the entire exclusion of the *aesthetic, social, moral* and *religious.*

Consistent with these truths the nature study work should be chosen largely from the following topics:

1. Domestic animals: the dog, horse, cat, cow, sheep, pig, goat and rabbit.

2. Tame birds: hen, duck, goose, pigeon, canary, parrot, turkey, peafowl.

3. Household insects: flies, mosquitoes, clothes moths, carpet beetles, fleas, lice, bedbugs, cockroaches, and ants.

4. Harmful garden and field insects: curculio, codling moth, peach tree borer, rose beetle, tent caterpillar, canker worm, fall webworm, cutworm, grasshoppers, aphids, rose slug, pear slug, grape-berry moth, sphinx, San Jose scale, mealy bugs, other scales, Colorado potato beetle, cucumber beetle, currant and gooseberry worms, cabbage butterfly, army worm, squash bug, strawberry saw fly, strawberry leaf roller, chinch bug and Hessian fly.

5. Beneficial garden and field insects: honey bee, bumblebee, hornet, ichneumon flies, braconids, chalcis flies, syrphus flies, tachina flies, lady bugs, dragon flies, damsel flies, and aphis lion.

6. Beautiful and interesting insects: monarch butterfly, swallowtail butterfly, other butterflies, Cecropia moth, Luna moth, Polyphemus moth, and mud wasp, and walking stick.

7. Beneficial plants: corn, wheat, oats, rye, timothy, clover, buckwheat, potato, cabbage, tomato, celery, asparagus, bean, pea, onion, radish, rhubarb, beet and parsnip.

8. Injurious plants: weeds, poison ivy, poison sumac, larkspur, cockle, snow on the mountain, jimson

weed, poison hemlock, pokeweed, poison oak, buckeye and horsechestnut, laurels, Death-cup mushrooms and night shade.

9. Fruits: apple, cherry, peach, pear, quince, plum, orange, lemon, strawberry, raspberry, blackberry, mulberry, gooseberry, currant, grape, squash, pumpkin, watermelon, muskmelon and cucumber.

10. Flowers: rose, tulip, crocus, narcissus, canna, gladiolus, phlox, centaurea, calliopsis, cosmos, dahlia, hydrangea, nasturtium, lilies, lilac, etc., etc.; also wild flowers.

11. Birds: robin, bluebird, thresher, thrushes, woodpeckers, sparrows, chickadees, cuckoos, flycatchers, catbird, orioles, bobolink, purple grackle, cowbird, redbirds, shrikes, heron, wrens, larks, kildeer, crow, hawks, quail, dove, swallows, owls, etc.

12. Insectivorous animals: toad, bat, frogs, newts, moles, water dog and salamander.

13. Forest trees: oaks, elms, maples, hickory, walnuts, tuliptree, beeches, ashes, cedars, pines, locusts, magnolia, linden, mulberry, hackberry, wild cherry, gum, sycamore, poplars, etc.

14. Miscellaneous: centipede, millipede, sowbug, crayfish, slugs, earthworms, clam; ferns, algae, mushrooms, molds, mildew and bacteria.

15. Heavenly bodies: Sun, planets, stars, constellations.

Material for a nature study course for any school may be chosen from such a large field as here indi-

cated. Conditions must determine to a considerable degree the selections made.

The Logical Steps.—The question for study here is, How best treat the topic chosen for selection?

Two considerations must guide the teacher in this work. First, the best way to bring out the essential facts of the object studied; secondly, the best way to show its human relation; that is, its economic, intellectual, aesthetic, social, moral and religious relations.

Since nature study work deals mainly with life, living topics will be treated first.

The business of any living thing in nature is (1) to care for itself; (2) to care for its young. In caring for itself it, (1) must get food; (2) must protect itself, and it must do the same in many cases for its young.

All that is worth knowing about any animal or plant as such, points towards these four points. Having traced these points out and having shown the human relation, the essential facts in the life of the being have been learned, and they have been given a nature study interpretation.

The following will indicate the logical steps in dealing with any object in nature study:

ANIMAL OR PLANT.

I. General appearance.
   1. Male and female.
   2. Business in life.
      a. To care for itself.

1′. Food.
a′. Organs for securing.
1″. Sense organs.
a″. Of sight.
b″. Of hearing.
c″. Of touch.
d″. Of smell and taste.
2″. Feet, claws, beak, etc.
b′. Organs for preparing.
1″. Mouth, teeth, etc.
c′. Manner of securing.
d′. Food habits friendly or unfriendly to man.
2′. Protection.
a′. Defensive.
b′. Offensive.
c′. Running away, concealment, feigning, etc.
d′. Habitation.
1″. Fixed or transient.
e′. Color adaptation.
b. To care for young.
1′. Production of.
a′. Brought forth alive.
b′. Hatched from egg.
c′. By division of parent.
e′. Stages of growth.
1″. Mode of life in each.
2″. Appearance in each stage.
3″. Food in each stage.

II. How protect, multiply, or combat.

As many of these steps may be taken as conditions warrant in studying any object of nature. The stage of development of the children may make it best to omit some. But, if the teacher will adhere reasonably closely to these steps, the children can be led to work out the essential truths of any object of nature in a very helpful way, too.

The step, "Food habits friendly or hostile to man," and the step, "How protect, multiply, or combat," bring out the human relation of the nature object.

Teachers in nature study are usually distressed in two things: (1) they do not know what to teach; that is they do not know what to select and do not know enough about anything they do select to teach it; (2) they do not know how to study and learn and teach any object of nature. This may be said in this way: teachers do not know nature study themselves and are not self-directive in studying it as they teach.

With the vast array of material indicated in these studies to select from, with the good manuals of nature study now published to help teachers and with the method of treating an animate nature study object indicated above, any ambitious teacher can help himself in both of these distressing difficulties.

In applying the logical steps in nature study to any plant such steps as only apply to animals, of course, must be omitted. Otherwise the general plan is the same.

In tracing through the toad, for instance, the step, "Food habits friendly or hostile to man," would be dwelt upon largely, and emphasized because of its great economic relation to man. And the step, "How protect, multiply, or combat," probably needs strong emphasis on only "How protect."

Again, in tracing through the peach tree, for instance, the step "How protect, and multiply" should bring out the protection of the peach tree from mice, rabbits, peach tree borers, curl leaf, brown rot, cold winters and stock. It should also, bring out how to grow a seedling peach, how bud it, how train it, and general care.

Similar points should be brought out about the apple, pear, cherry, and other fruits.

The social and ethical side of the human relation of these points can be and should be impressed upon children. For instance, if I let contagious or infectious diseases exist, and injurious insects breed on my premises they may spread to my neighbor's premises and cause him injury and loss. Thus to permit an old blighted pear tree to stand in my orchard as a center of infection to the neighborhood is an unsocial and immoral act.

Inanimate Nature Study Objects.—The method of dealing with objects of nature which do not possess life is simply to lead the learner to learn in so far as possible the essential facts of the object, then trace out its human relations.

It is evident that nature study work as indicated

above correlates with oral primary language lessons, written primary language lessons, reading, spelling and writing.

CHAPTER XL.

DEVICES AND ERRORS IN NATURE STUDY.

Devices.—Devices are the physical means used in teaching nature study. They are more numerous and varied in nature study work than in most other subjects. A volume could be written on devices alone in nature study. All that will be attempted here is the enumeration and brief discussion of some of the most important. The following may be considered devices in nature study: 1. Assignments. 2. Class discussions. 3. Text-books. 4. Teacher's manuals. 5. Apparatus. 6. Government bulletins. 7. Reports of agricultural schools. 8. Periodicals and catalogues.

Assignments, Class Discussions and Text-books.—Assignments and class discussions hold about the same relation to the nature study lesson that they hold to lessons in other subjects. These have been treated before, and while they should be rethought, it is not necessary to re-discuss them in this connection.

Text-books are not likely to be very valuable devices in the hands of the learner, unless the first-hand work with natural objects is made the chief line of work and the text be employed as a guide or reference book.

A text-book even in the hands of the teacher fre-

quently proves a hindrance rather than a help in nature study.

So far as the writer knows, there is no text-book extant in nature study good to put in the hands of the children for class work.

Teacher's Manuals.—At the present stage of nature study teaching in our schools, teacher's manuals constitute an extremely important device in nature study work. They enable the teacher to find out what to lead the learner to look for in studying; that is, they are guides to the teacher who has only a very limited knowledge of the topics he wishes to teach.

There are published now some most excellent ones, helpful as to subject-matter and fertile in suggestion. The following are all worthy of high commendation; fresh, vigorous, and sound pedagogically:

1. Hodge's Nature Study and Life.
2. Insect Life, An Introduction to Nature Study, Comstock.
3. Manual for the Study of Insects, Comstock.
4. Dennis's Nature Study.
5. Bird Guide, Numbers 1 and 2, Chas. K. Reed, Worcester, Mass.

With the help of such manuals as these, the teacher who desires to do so can help himself largely on the subject-matter of nature study.

Apparatus.—The apparatus for nature study are so various that no attempt will be made to enumerate and describe all of them. They are opera glasses, microscopes, hand lenses, insect nets, cyanide bottles, mount-

ing cases, pins, breeding cages, flower pots, aquaria, vivaria, etc.

These are described in teacher's manuals and directions for use and for making many are given. Some of them are very helpful in nature study work, almost indispensable. Most, unless it be a microscope, are obtainable by any thoughtful teacher. A microscope is not indispensable, although valuable in some nature study work.

Government Bulletins.—The government bulletins on various aspects of nature study and agriculture sent out by the Department of Agriculture are very valuable helps to the teacher of nature study. Most of them are sent out free of charge and are obtainable for the asking. Every one interested in nature study should write to the Department of Agriculture and have his name placed upon the permanent mailing list that he may receive all bulletins sent out. They contain the very latest discovered information on many nature study topics.

Reports of Agricultural Schools.—Congress provided a good many years ago for an Agricultural College in each State. These send out bulletins and reports, too. They are valuable. Each teacher should have his name put on the permanent mailing list.

Periodicals and Catalogues.—Some periodicals are very valuable to teachers of nature study. Such a one is The National Fruit Grower, St. Joseph, Mich., published and sent out twelve times per year.

Florists' and Nurserymen's catalogues are helpful

to teachers of nature study. Each teacher should write Vaughan and Co., Chicago, and Storrs and Harrison Co., Painesville, Ohio, and have his name placed on the permanent mailing list for these beautiful and useful catalogues. They send them free of charge.

Other firms will doubtless do the same.

Errors in Teaching Nature Study.—Nature study is one of the new subjects in the curriculum of the American schools. As in all new subjects the work has been frequently, and at present is in many places in the experimental stage of development. Teachers are groping to a considerable degree. As a result errors abound. These in a general way grow out of two things: 1. Teachers do not know the subject; that is, they are lacking in knowledge of natural objects. 2. They do not know the method of nature study; that is, they do not know how to deal with any object of nature in the nature study work.

The following is a list of common errors made concerning nature study in our schools. 1. The gross neglect of nature study in education. 2. Teaching books instead of nature. 3. Making nature study a kind of elementary science.

Neglect of Nature Study.—The study of Nature, the greatest teacher of the race, is grossly neglected in most schools of America to-day. Children go through the twelve years' course of study in many schools, country, village, town and city schools, without ever having had a single lesson of first-hand study of natural objects in their natural environment under school incentives.

If they get such lessons, it is not under school direction.

Such an error is fundamental, far-reaching, dwarfing, and degenerating in the life of a people. It leaves the senses uncultivated; observation of nature dwarfed; love of nature undeveloped, and the rising generations lamentably ignorant of their natural environment. In no other thing are the American schools so inefficient as in this important matter.

"The education of the senses neglected, all after education partakes of a drowsiness, a haziness, an insufficiency, which it is impossible to cure."

"To-day most men are shut off from the pleasures the naturalist experiences in the woods because having eyes we see not, and having ears we hear not, and having minds we comprehend not the messages nature would be continually giving us."

"The omission of *soil lore* from a system of education of the young is suggestive of relapse to barbarism. To allow a child to grow up without planting a seed or rearing a plant is a crime against civilized society, and our armies of tramps and hordes of hoodlums are among the first fruits of an educational system that slights this important matter."

Books Instead of Nature.—It is a common error of teachers in first attempting to teach nature study to read to the children from some book on nature study, have the children recite orally what they remember of it as a second lesson, and frequently as a third lesson to write out what they remember of what was read to them and what they recited on orally.

And another aspect much like the first in result is for the teacher to study the book, tell in story form what she has learned, then have the oral and written lessons to follow.

This is called nature study in good faith and actually it seems that some teachers who do this think they are teaching nature study.

The writer has personally known so good a book as Hodge's Nature Study and Life used in this way. And when the children did not get enthusiastic over the work, nature study was called a failure, soon dropped and that most inspiring book discredited.

Nature study had as well not be attempted as to attempt it by leaving all nature out and teaching books. Such work fails in every important educational value which the study of nature first-hand gives.

Such teachers are mere book babblers and much of the time would not know the thing about which they talk, if they should meet it face to face in its natural environment.

Making Nature Study Science.—Attempts have been made to make nature study elementary science. Such work has usually resulted in failure.

Science is a modern thing. It is a product of the race in the later stages of its development, and as such is adapted to a greater degree of maturity of mind than possessed by the child when he should be learning his nature study work. Modern sciences as taught in the schools to-day are special interests of mature minds.

Zoology and botany in the universities, colleges, and

high schools of the present do not teach the children what they should learn in nature study in the way they should learn it in nature study.

The sciences have different organizing principles from nature study, and are and should be taught differently from nature study.

To attempt to teach nature study as elementary science usually kills the subject.

APPENDIX.

SUPPLEMENTARY READING.

Nature of Supplementary Reading.—In connection with the reading material found in the text-book other reading material should be placed in the hands of the children for them to read. Much of this kind of material may be used profitably in what is called sight reading; that is, reading by the children without their having made previous preparation on the selection. This kind of work is what is called *supplementary reading,* and the selections are called material for supplementary reading.

Need and Value of.—There is much need for supplementary work in teaching reading. It is needed in teaching reading for the following reasons:

1. To put more life and interest in the reading work, and thus make it easier for both the pupils and the teacher.

2. To give the learner speed in interpretation and skill in oral expression.

3. To lead the learner to love good literature, and thus into the habit of reading good literature.

Difficulties.—Most teachers recognize the value of supplementary reading and the desirability of doing such work, but have two difficulties: 1. Many do not

have suitable material. 2. Many do not know what suitable material is nor how to get it.

In order to help teachers in obtaining suitable material a list of books and selections for each of the grades of the primary schools has been arranged. The lists are made up of the names of books and selections approved by the judgment of the best educators in our country.

It is not expected that any teacher will be able to secure all of these books and selections. It is not at all necessary. But some of them will doubtless be available to any earnest teacher.

FIRST YEAR.

1. Classic Stories for Little Ones, McMurry, Public School Publishing Co., Bloomington, Ill. ..... $ .40
2. Twilight Stories, Foulke, Silver, Burdette and Co., Chicago ..... .35
3. Cyr's Primer, Ginn and Co., Chicago..... .30
4. The Werner Primer, The Werner School Book Co., Chicago..... .25
5. Our Little Book for Little Folk, American Book Co., Chicago..... .40
6. Cyr's First Reader, Ginn and Co., Chicago.. .35
7. Fables and Rhymes for Beginners, Ginn and Co., Chicago..... .30
8. Hodskin's Little People's Reader, Ginn and Co., Chicago..... .30
9. Baldwin's First Reader, American Book Co., Chicago ..... .25

10. Stories for Kindergartens and Primary Schools, Wiltse, Ginn and Co., Chicago.. .35

SECOND YEAR.

1. Robinson Crusoe, for Boys and Girls, McMurry, Public School Publishing Co., Bloomington, Ill. ..... $ .25
2. Grimm's Fairy Tales, Wiltse, Ginn and Co., Chicago..... .35
3. Stories Mother Nature Told Her Children, Ginn and Co., Chicago..... .50
4. Easy Steps for Little Feet, American Book Co., Chicago..... .25
5. Verse and Prose for Beginners, Houghton, Mifflin and Co., Chicago..... .25
6. First Year Nature Reader, Werner School Book Co., Chicago..... .40
7. The Riverside Reader and Primer, Houghton, Mifflin and Co., Chicago, 205 pages.. .30
8. Johonnot's Book of Cats and Dogs, American Book Co., Chicago..... .17
9. The Hiawatha Primer, 147 pages, Houghton, Mifflin and Co., Chicago..... .40
10. Cooke's Nature Myths, A. Flanagan, Chicago ..... .40

THIRD YEAR.

1. Scudder's Fables and Folk Stories, 200 pages, Houghton, Mifflin and Co., Chicago $ .40
2. Stories of Indian Children, Public School Publishing Co., Bloomington, Ill. ..... .50
3. Cyr's Third Reader, Ginn and Co., Chicago .45

4. Stickney's Esop's Fables, Ginn and Co., Chicago ..... .40
5. Short Stories of Our Shy Neighbors, American Book Co., Chicago..... .50
6. Golden Book of Choice Reading, American Book Co., Chicago..... .30
7. Book of Tales, American Book Co., Chicago .50
8. Peabody's Old Greek Folk Stories, Houghton, Mifflin and Co., Chicago..... .25
9. Myths of Old Greece, Pratt, Ginn and Co., Chicago ..... .60
10. Heart of Oak No. II., D. C. Heath and Co., Chicago ..... .40

FOURTH YEAR.

1. Hawthorne's Wonder Book, Houghton, Mifflin and Co., Chicago..... $ .40
2. Hawthorne's Tanglewood Tales, Houghton, Mifflin and Co., Chicago..... .40
3. Kingsley's Water Babies, Ginn and Co., Chicago ..... .45
4. Francillon's Gods and Heroes, Ginn and Co., Chicago ..... .50
5. Baldwin's Old Stories of the East, American Book Co., Chicago..... .45
6. Stories from Arabian Nights, Houghton, Mifflin and Co., Chicago..... .40
7. Ruskin's King of the Golden River, etc., Houghton, Mifflin and Co., Chicago..... .25
8. Black Beauty, A. Flanagan, Chicago..... .35
9. Pioneer History Stories, McMurry, Public

School Publishing Co., Bloomington, Ill. .50
10. Stories of Great Americans, American Book Co., Chicago..... .40

FIFTH YEAR.

1. Anderson's Fairy Tales, Second Series, Ginn and Co., Chicago..... $ .45
2. Bunyan's Pilgrim's Progress, by Montgomery, Ginn and Co., Chicago..... .35
3. Stories of Our Country, American Book Co., Chicago ..... .40
4. Lays of Ancient Rome, Houghton, Mifflin and Co., Chicago..... .25
5. The Voyage to Lilliput and Brobdingnag, Houghton, Mifflin and Co., Chicago..... .40
6. Polly Oliver's Problem, Houghton, Mifflin and Co., Chicago..... .60
7. The Children's Life of Lincoln, McClurg and Co., Chicago..... 1.25
8. First Book in American History, Eggleston, American Book Co., Chicago..... .60
9. Heroes of Asgard, MacMillan Co., Chicago.. .50
10. Lads and Lassies of Other Days, McClurg and Co., Chicago..... .50

SIXTH YEAR.

1. Fry's Brooks and Brook Basins, Ginn and Co., Chicago..... $ .70
2. Ten Boys on the Road from Long Ago to Now, Ginn and Co., Chicago..... .60
3. Burrough's Birds and Bees, Houghton, Mifflin and Co., Chicago..... .60

4. Franklin's Autobiography, by Montgomery, Ginn and Co., Chicago..... .50
5. Longfellow's Evangeline, Houghton, Mifflin and Co., Chicago..... .25
6. Irving's Sketch Book, A. Flanagan, Chicago .50
7. Arabian Nights, by Hale, Ginn and Co., Chicago ..... .55
8. Hughs's Tom Brown at Rugby, Ginn and Co., Chicago..... .60
9. Lamb's Tales of Shakespeare, Houghton, Mifflin and Co., Chicago..... .50
10. Scudder's George Washington, Houghton, Mifflin and Co., Chicago..... .40

SEVENTH YEAR.

1. Scott's Lady of the Lake, Ginn and Co., Chicago ..... $ .45
2. Swift's Gulliver's Travels, Ginn and Co., Chicago ..... .40
3. Dana's Two Years Before the Mast, Houghton, Mifflin and Co., Chicago..... .60
4. Hawthorne's Tales of White Hills, Houghton, Mifflin and Co., Chicago..... .40
5. Washington's Rules of Conduct, Diary, Letters and Addresses, Houghton, Mifflin and Co., Chicago..... .25
6. Wiltse's Jean Valjean, Ginn and Co., Chicago 1.05
7. Wiggins' The Story of Patsy, Houghton, Mifflin and Co., Chicago (Fine)..... .60
8. Ball's Star-land, Ginn and Co., Chicago.... 1.10

9. Wyss' Swiss Family Robinson, Ginn and Co., Chicago ..... .55
10. Hawthorne's Biographical Stories, Houghton, Mifflin and Co., Chicago..... .25

EIGHTH YEAR.

1. Lowell's Vision of Sir Launfal, and Other Poems, Houghton, Mifflin and Co., Chicago ..... $ .25
2. Two Great Retreats of History, Ginn and Co., Chicago..... .60
3. Scott's Talisman, Ginn and Co., Chicago... .60
4. Lamb's Adventures of Ulysses, Ginn and Co. .35
5. Starr's American Indians, McClurg and Co., Chicago 1.00
6. Plutarch's Lives, Ginn and Co., Chicago.... .55
7. Spyri's Heidi, Ginn and Co., Chicago..... .60
8. Long's Ways of Wood Folks, Ginn and Co., Chicago ..... .60
9. Stories from English History, by Blaisdell, Ginn and Co., Chicago..... .50
10. Hawthorne's House of Seven Gables, Houghton, Mifflin and Co., Chicago..... .70

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